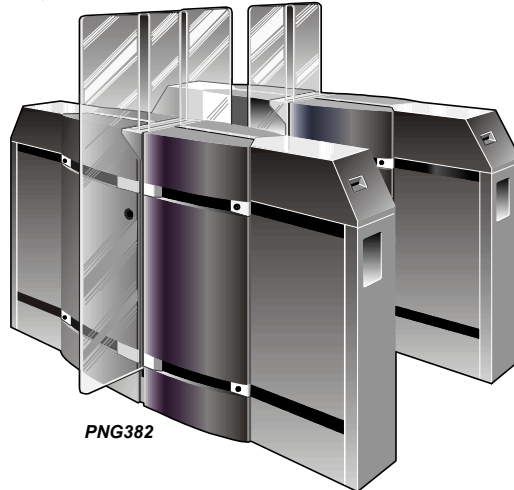


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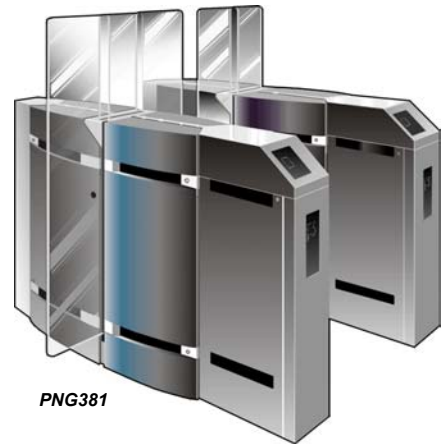
A automatic
systems



PNG380



PNG382



PNG381

Automatic gate
type "PNG380/381/382"

FIELD MANUAL

Automatic Systems s.a.

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1. INTRODUCTION

We thank you for choosing the "PNG380", "PNG381", or "PNG382" automatic gate 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.

This gate complies with the European "Machines" directive as well as with the EN 60950, EN 600204-1, EN 50081-1 and EN 50082-2 electromagnetic compatibility (EMC) standards. On July 15, 1999, the authorized official body CEBEC drew up a certificate bearing the number 11170. You can get a copy of it on request.

WARNING:

YOUR "PNG380/381/382" AUTOMATIC 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 **(2:1)** OF THE MASTER GATE, WHICH IS LOCATED BEHIND THE LATERAL POLYESTER DOOR **(10:1)**. BE CAREFUL IN HANDLING ANY INTERNAL ELEMENT WHICH MIGHT BE UNDER POWER OR COULD BE SET IN MOTION.

WHEN WORKING ON CIRCUITS; IT IS RECOMMENDED:

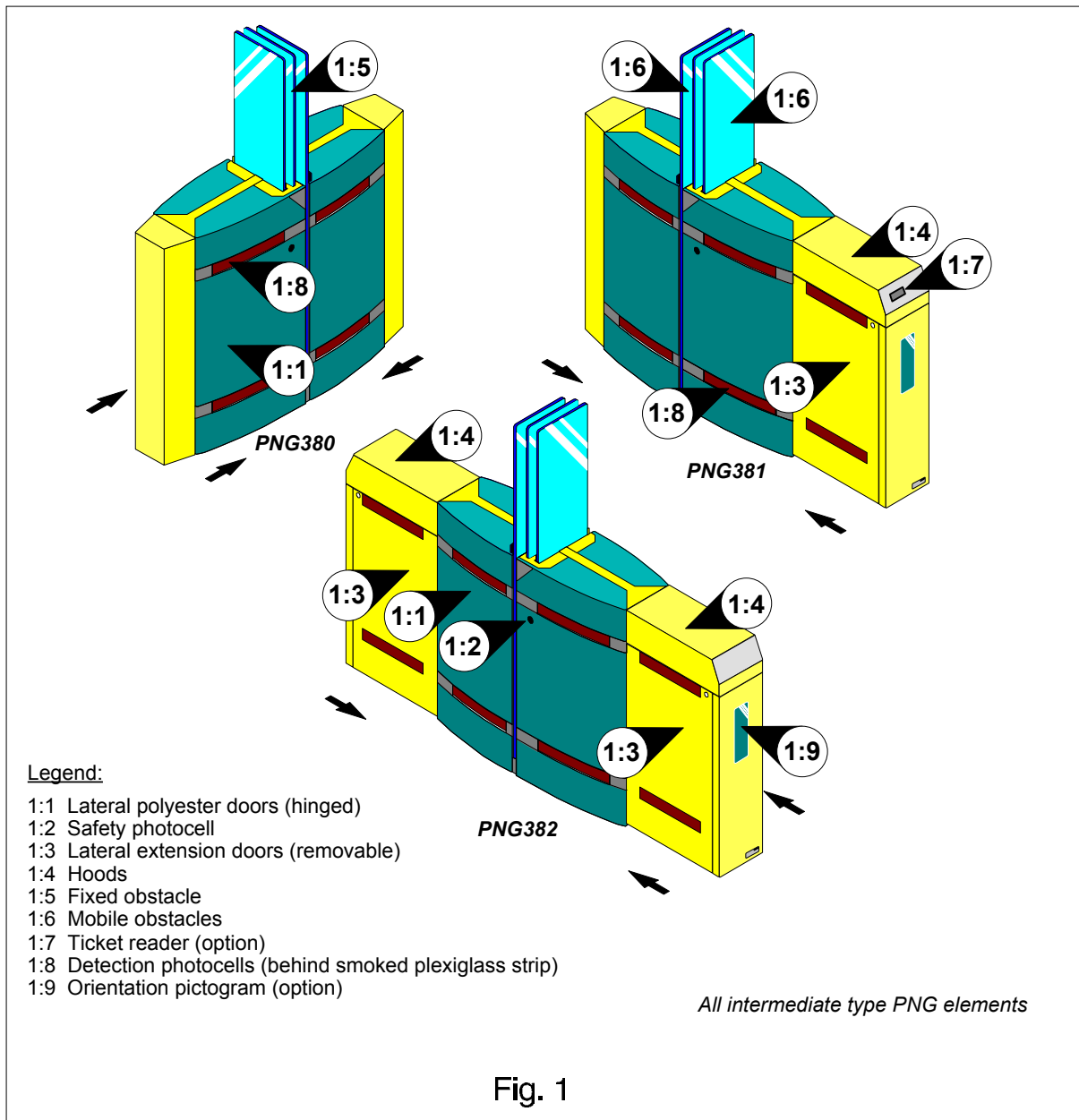
- NOT TO DISCONNECT WIRES WITHOUT MARKING THEIR TERMINALS;
- NOT TO REMOVE THE CONNECTOR WITHOUT MARKING ITS PRECISE POSITION.

ATTENTION

THE APPARATUS THAT YOU HAVE BEEN DELIVERED IS PROGRAMMED SO THAT THE RISK IS MINIMIZED FOR USERS. TO INCREASE CONTROL AND THEREFORE REDUCE FRAUD, YOU CAN SPEED UP THE CLOSING OF THE OBSTACLES. IN THIS CASE, YOU MAY HAVE TO PROHIBIT ACCESS TO UNACCOMPANIED CHILDREN AND TO ANIMALS.

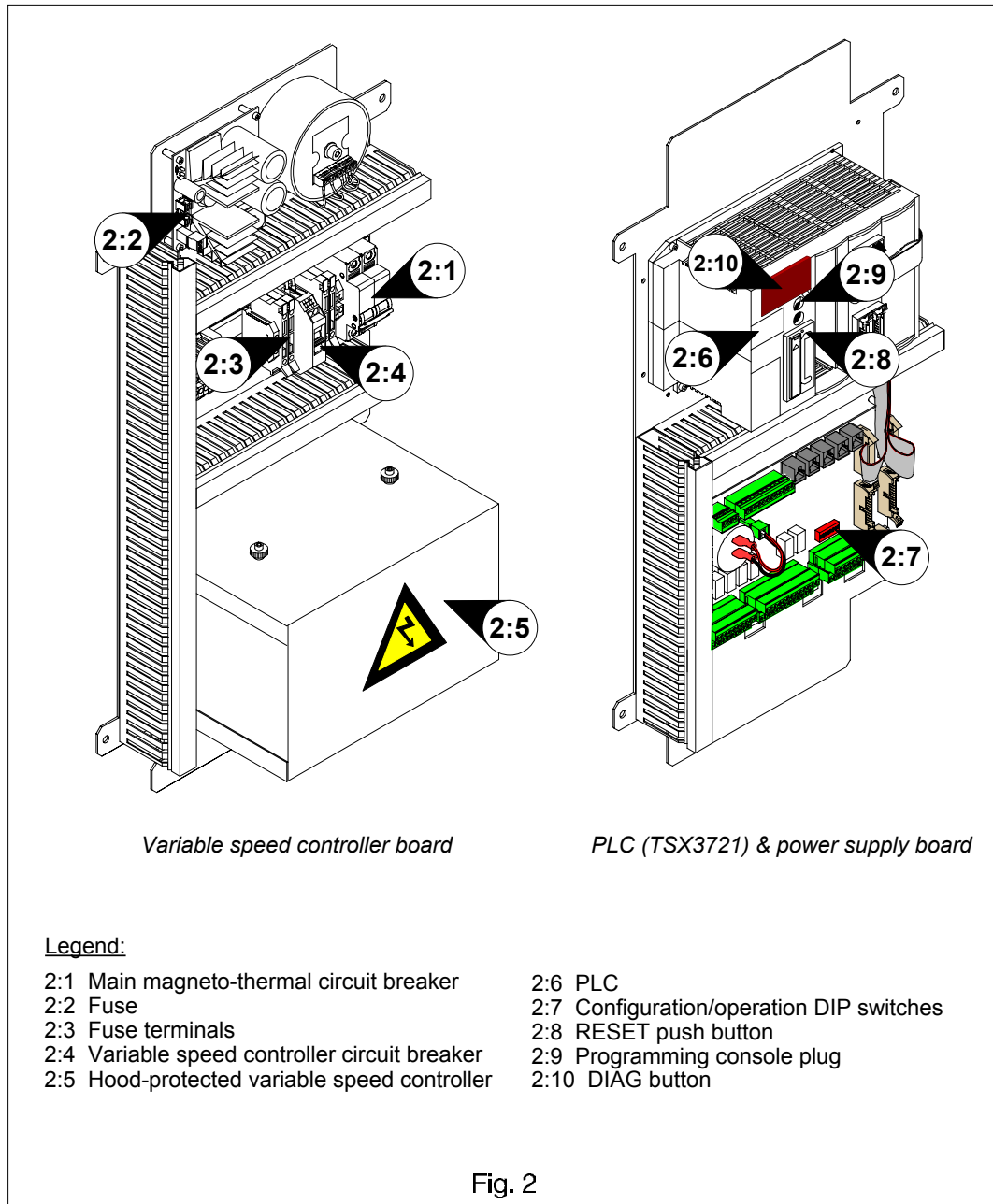
2. GENERAL

2.1. General view



Note: Conventionally and as a general rule, the user will be considered in direction "A" when the gate is at his right side, in direction "B" when the gate is at his left side. Direction A is typically the entry direction into the paid area, while direction B is the exit.

2.2. Switching off the equipment

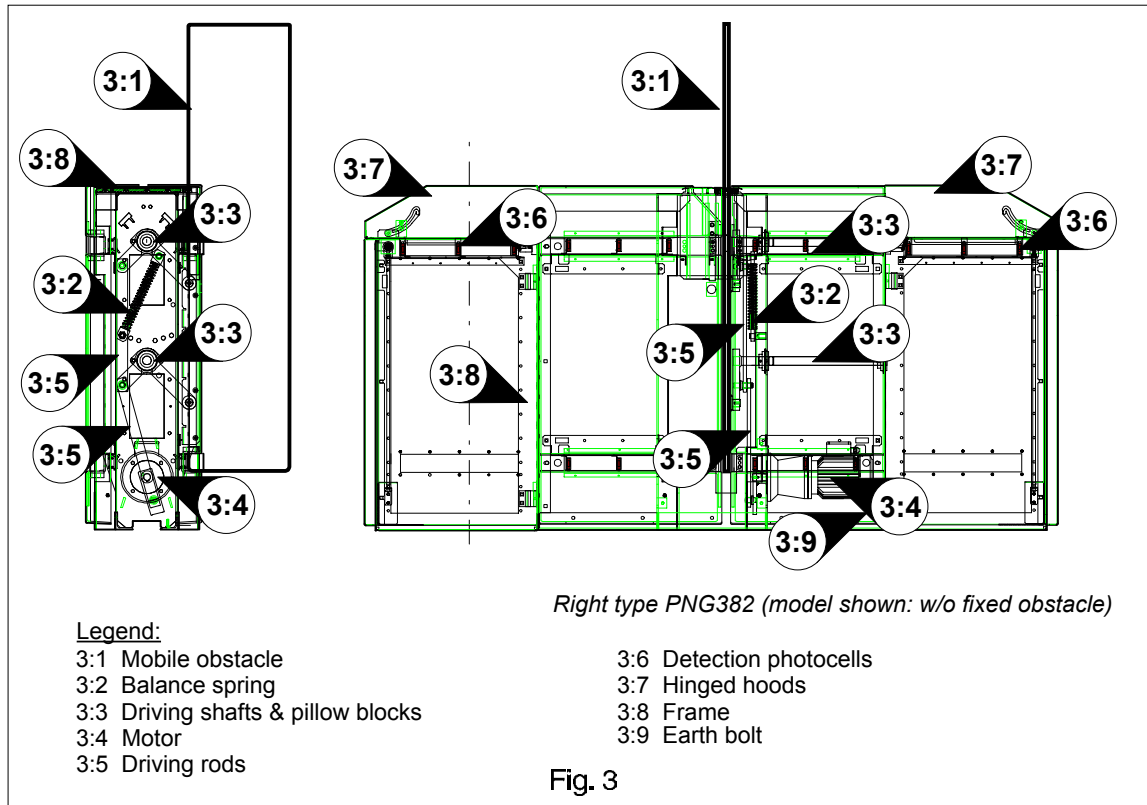


- As soon as you open the housing, switch off the main magneto-thermal circuit breaker (2:1), located behind the lateral polyester door (10:1). Always switch off the master mechanical group power supply, since the slave mechanical group is powered by the adjacent gate.

2.3. General conditions of use

- Your automatic gate type “PNG380/381/382” has been designed to operate in any kind of climatic environment, from -20°C to +60°C, with up to 95% of relative humidity.

2.4. Sectional views



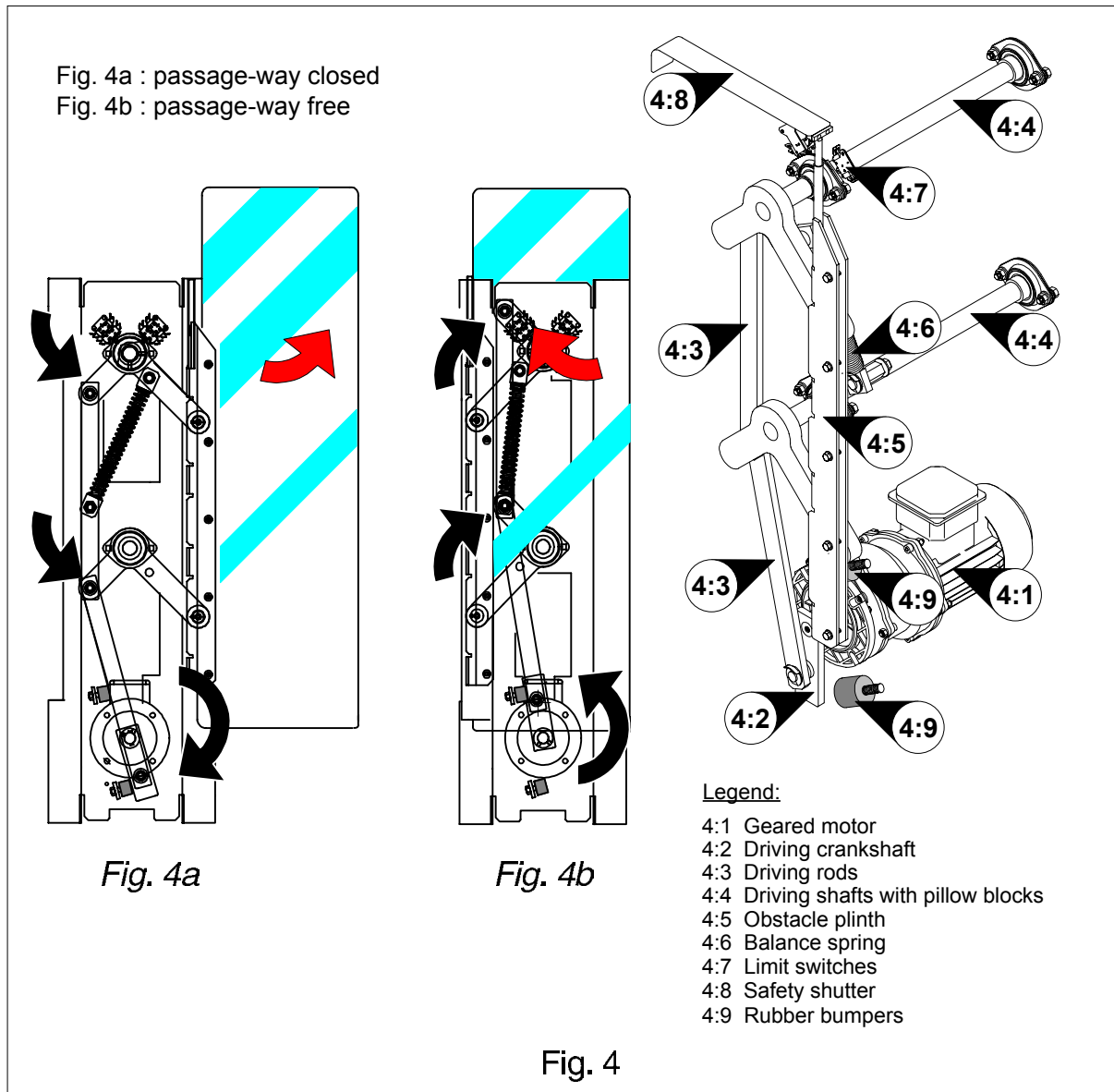
2.5. Common abbreviations

- The most common abbreviations used in this manual are as follows:
- ◆ Alr : Alarm
- ◆ BT : Time base
- ◆ CR : Red cross
- ◆ CS : Safety photocell
- ◆ FCF : Closing limit switch
- ◆ FCO : Opening limit switch
- ◆ FL : Green arrow
- ◆ I/O : Inputs/Outputs
- ◆ J : Jumper
- ◆ LC : Card reader
- ◆ LED : Light-Emitting Diode
- ◆ NC : Normally closed (ditto)
- ◆ NO : Normally open (ditto)
- ◆ Picto : Pictogram
- ◆ PLC : Programmable Logic Controller
- ◆ PNG : Unattended passage (see *paragraph [2.8. Sample configuration]*)
- ◆ VF : Variable speed controller
- ◆ VSC : Variable Speed Controller
- ◆ X : Connector (in electrical diagrams)

2.6. In case of power failure

- Except type PNG380, the equipment includes an emergency power backup that activates the motor of each mechanical group as soon as the electrical power supply is off (power failure), thus allowing all the obstacles of the battery to open automatically. This system is called the “anti-panic opening device”.

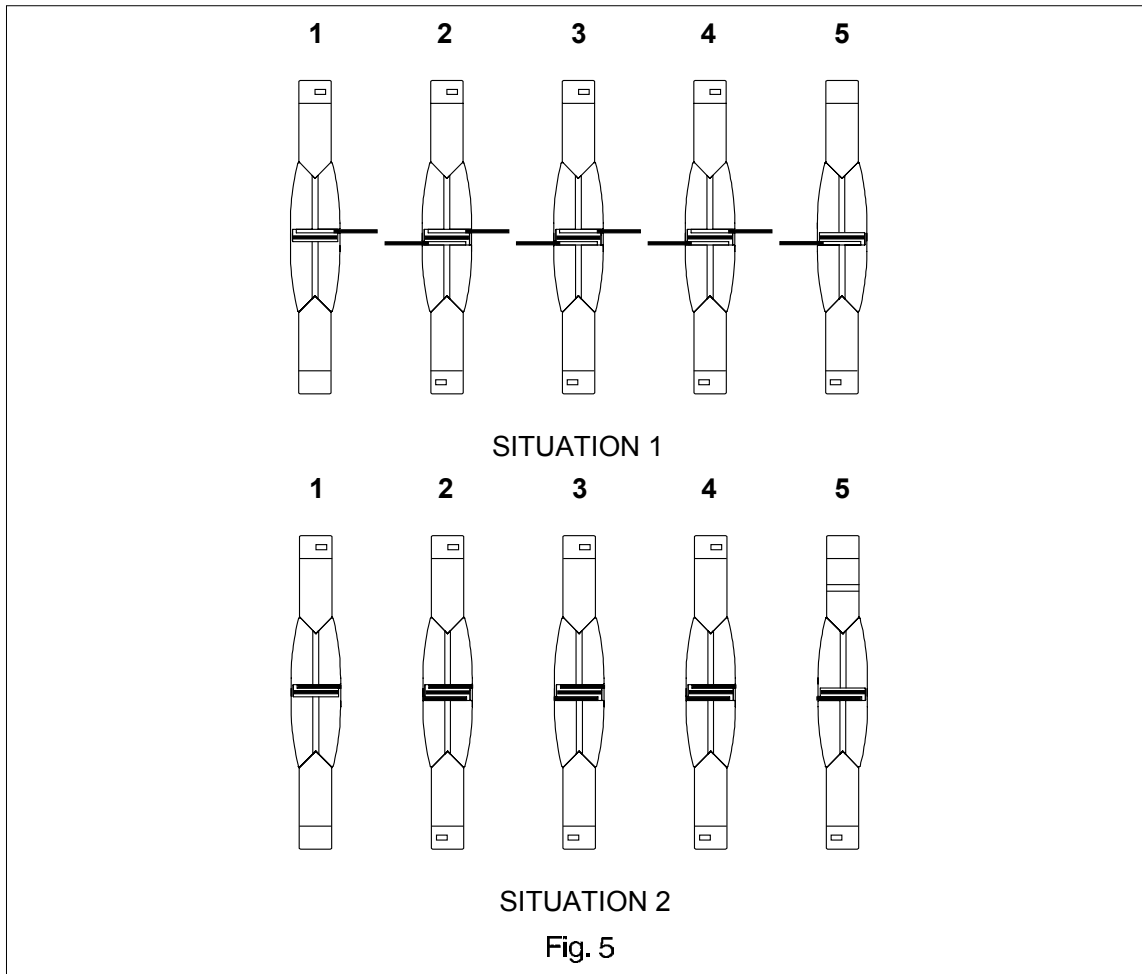
2.7. Mechanical assembly



Note: Each obstacle is actuated by its own associated mechanical group. An intermediate element hence includes two mechanical groups, and an outer element (left or right) includes one.

2.8. Sample configuration

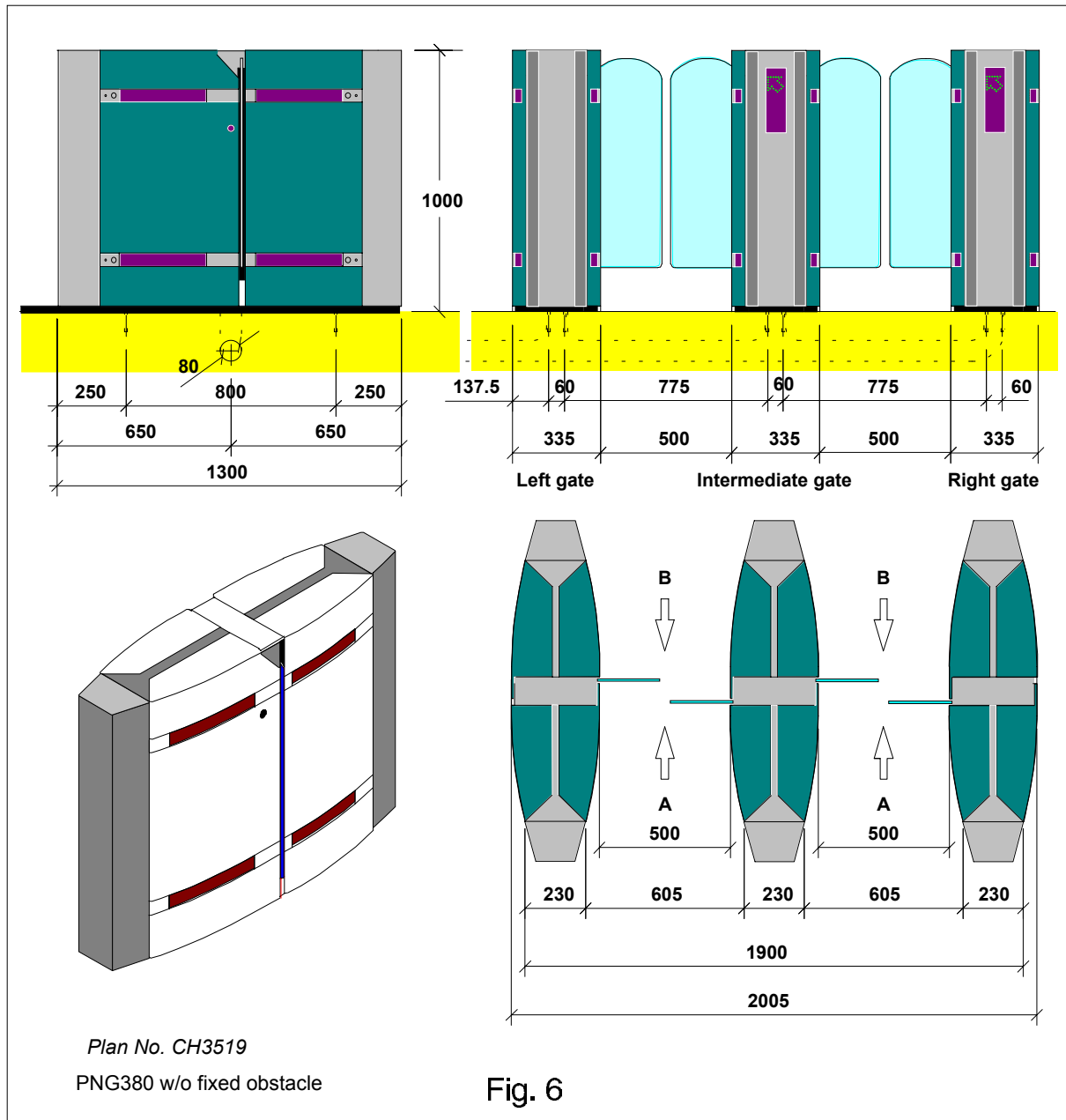
- The sample configuration below shows a four passage-way bidirectional **PNG382/NC** battery (reversible). The structure comprises two outer elements (1 and 5), and three intermediate elements (2, 3, and 4). Element 1 is of the left type, and element 5 of the right type.
- "PNG" stands for "Unattended Passage" in French. This security gate has indeed been developed to control pedestrians' flow at unmanned access points. A remote control desk is, however, available as an option.
- "NC" (*Normally Closed*) means that when switched on, ready to operate, the obstacles are always closed and open only when the passage is authorised. The system can alternatively be configured to operate *Normally Open* ("NO"), i.e., the obstacles are always open and close only in case of fraud attempt.



Situation 1: Bidirectional access controlled by PNG forming four lanes in a *Normally Closed* configuration. All obstacles are locked in the closed position, passage is not allowed.

Situation 2: The obstacles all retract during a power failure and free passage is possible in both directions, thanks to the integrated anti-panic opening device. All obstacles are in the open position.

2.9. General dimensions and installation plans (with cabling)



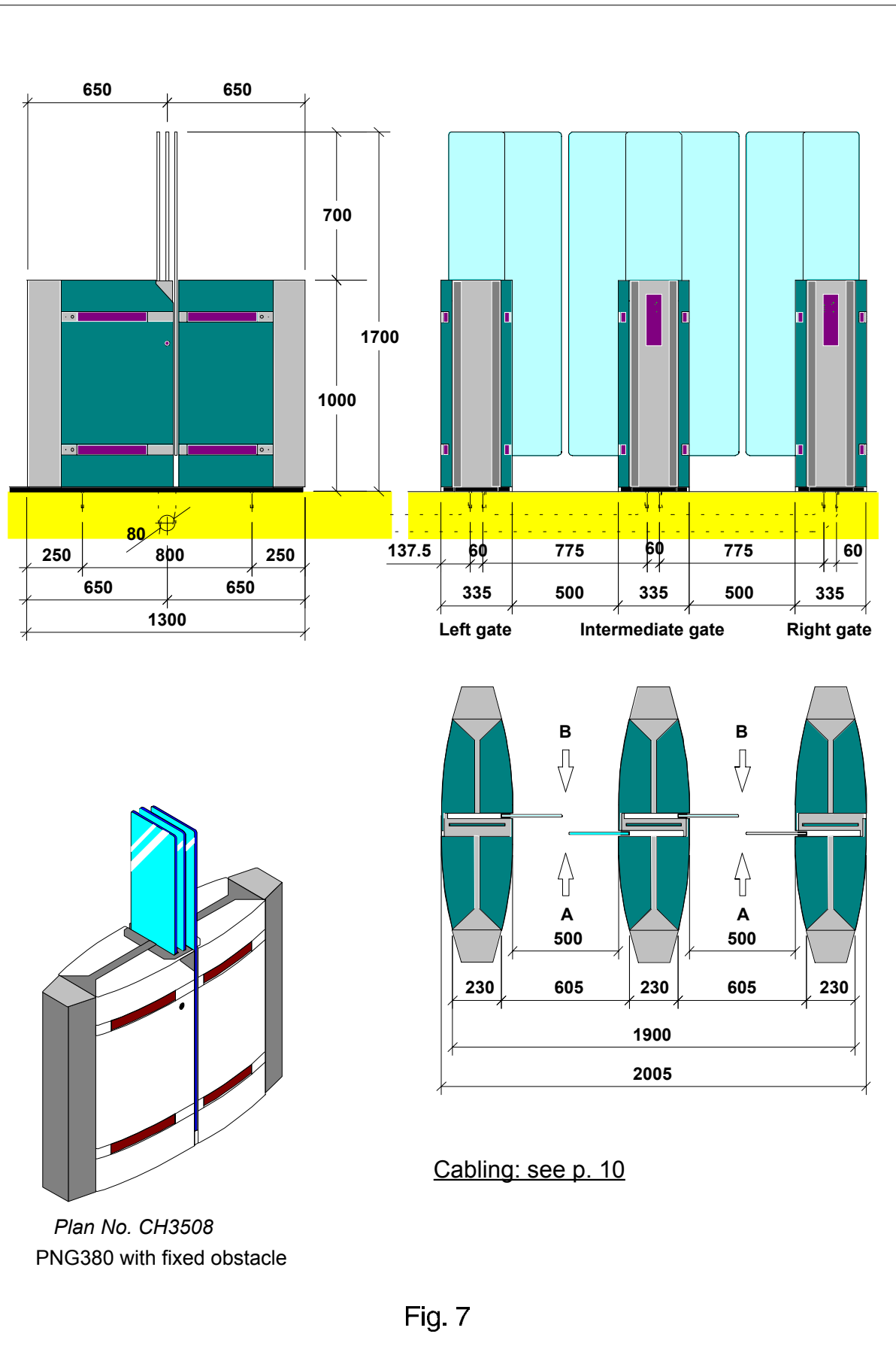
- **Work not supplied:**

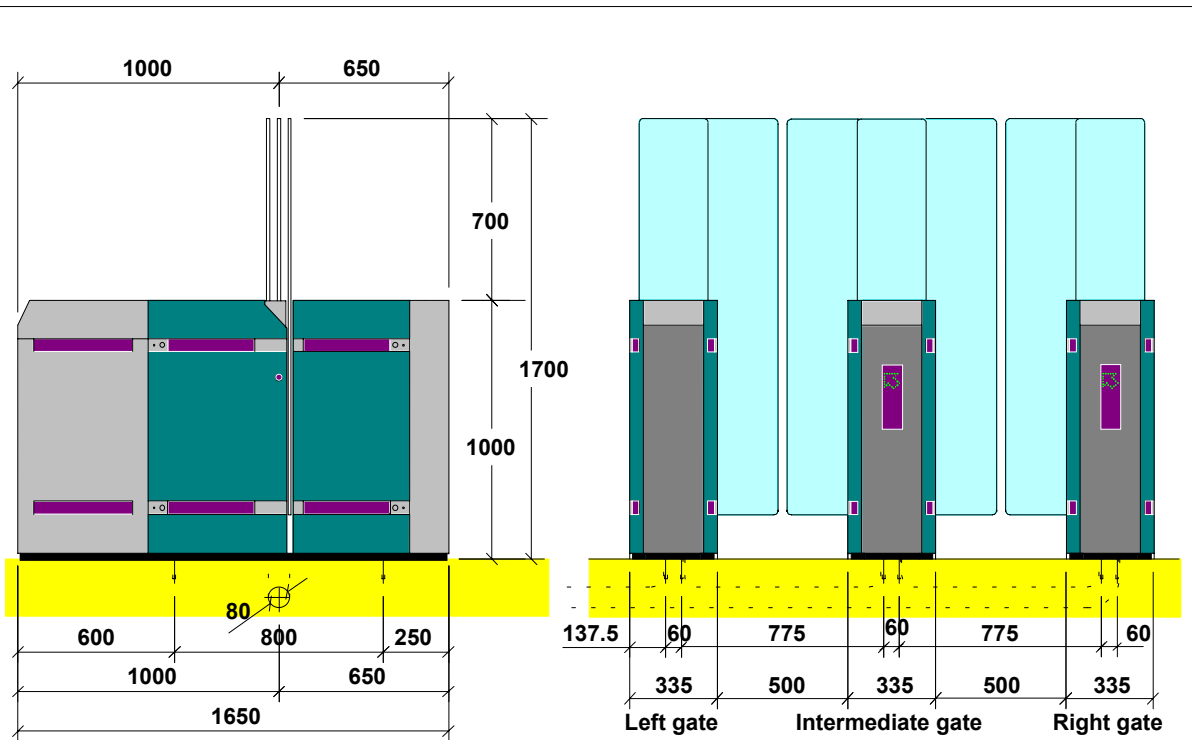
- ⇨ Separate power supply to each right and intermediate gate: 230V \approx + earth in 3G2.5 (2 x 2.5 + earth).
- ⇨ 2.5 earth connection between left gate and intermediate gate.
- ⇨ Connection between each adjacent gate in 12 pairs dia. 0.6 type TPVF.
- ⇨ Remote control between control desk, right gate and intermediate gate in 12 pairs dia. 0.6 type TPVF.

WARNING: In all cases, ensure that cables have a minimum of 3 metres from the finished ground level. Prepare a wire puller between each adjacent gate.

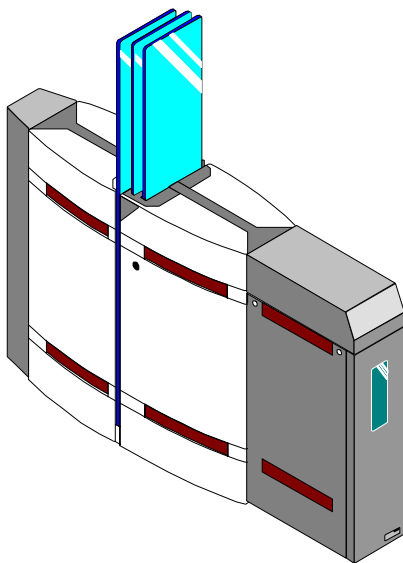
- **Supplied by Automatic Systems:**

- ⇨ Connection between each adjacent gate in 4G1.5 type LIYCY (motor power supply). (Standard: 3m long)





Cabling: see p. 10



Plan No. CH3527
PNG381

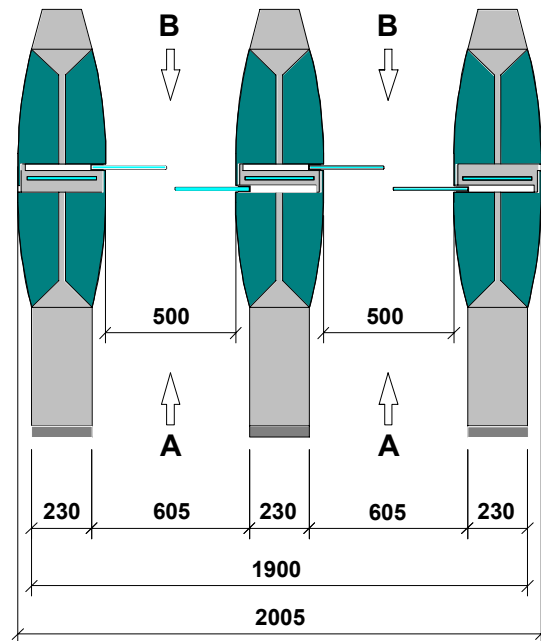
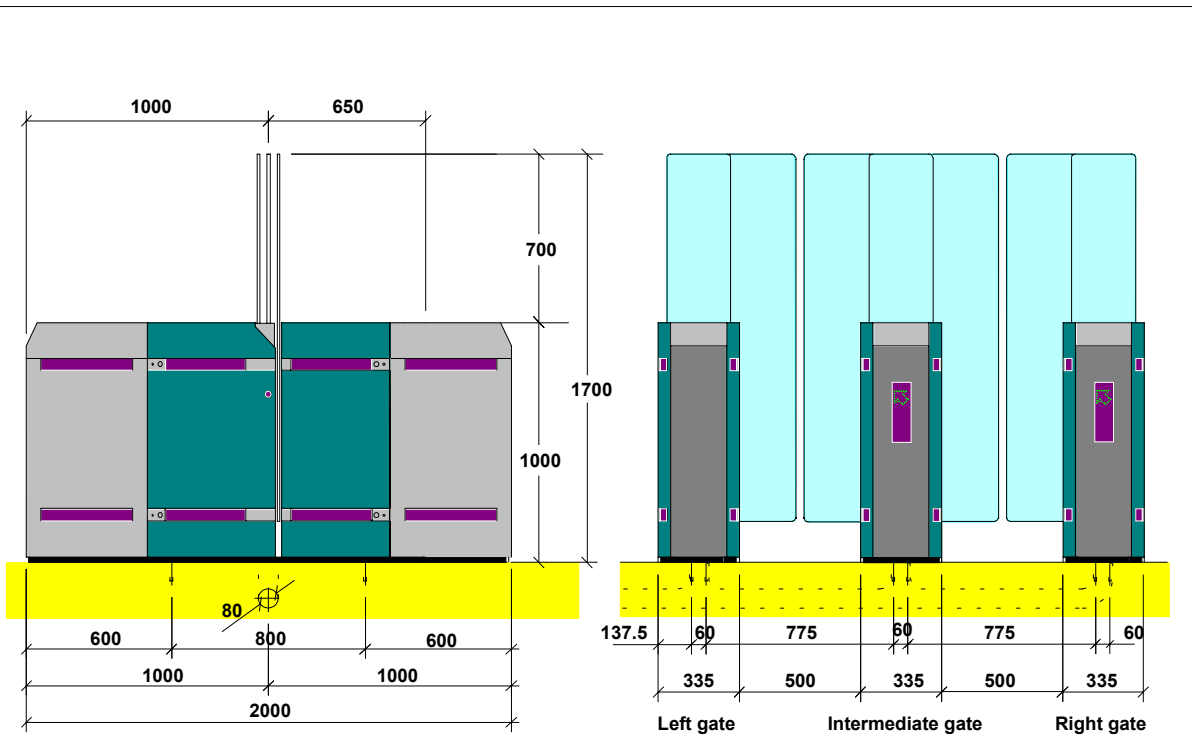
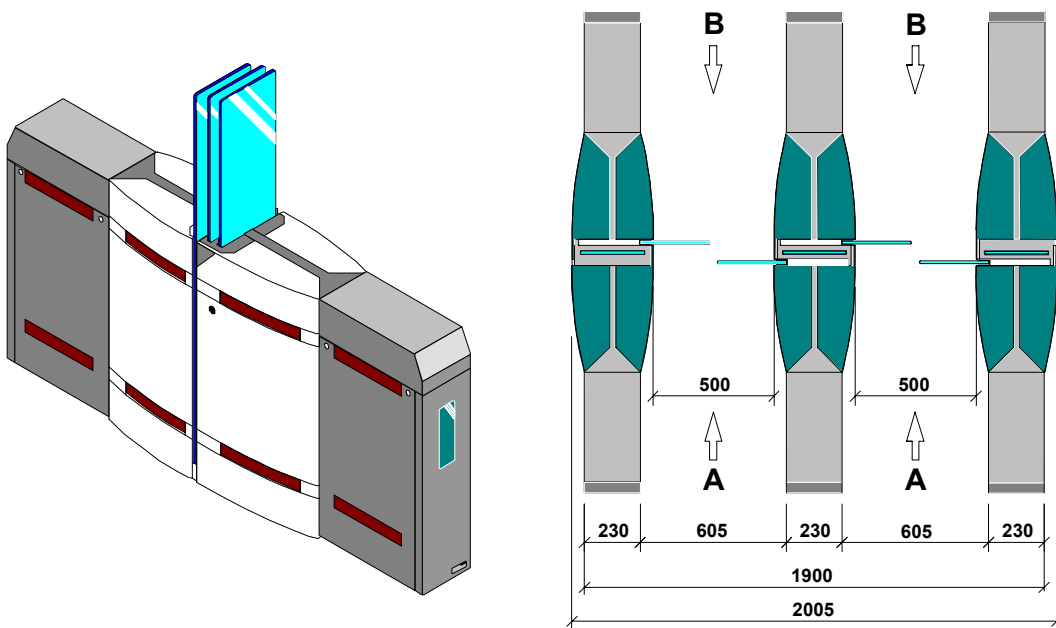


Fig. 8



Cabling: see p. 10

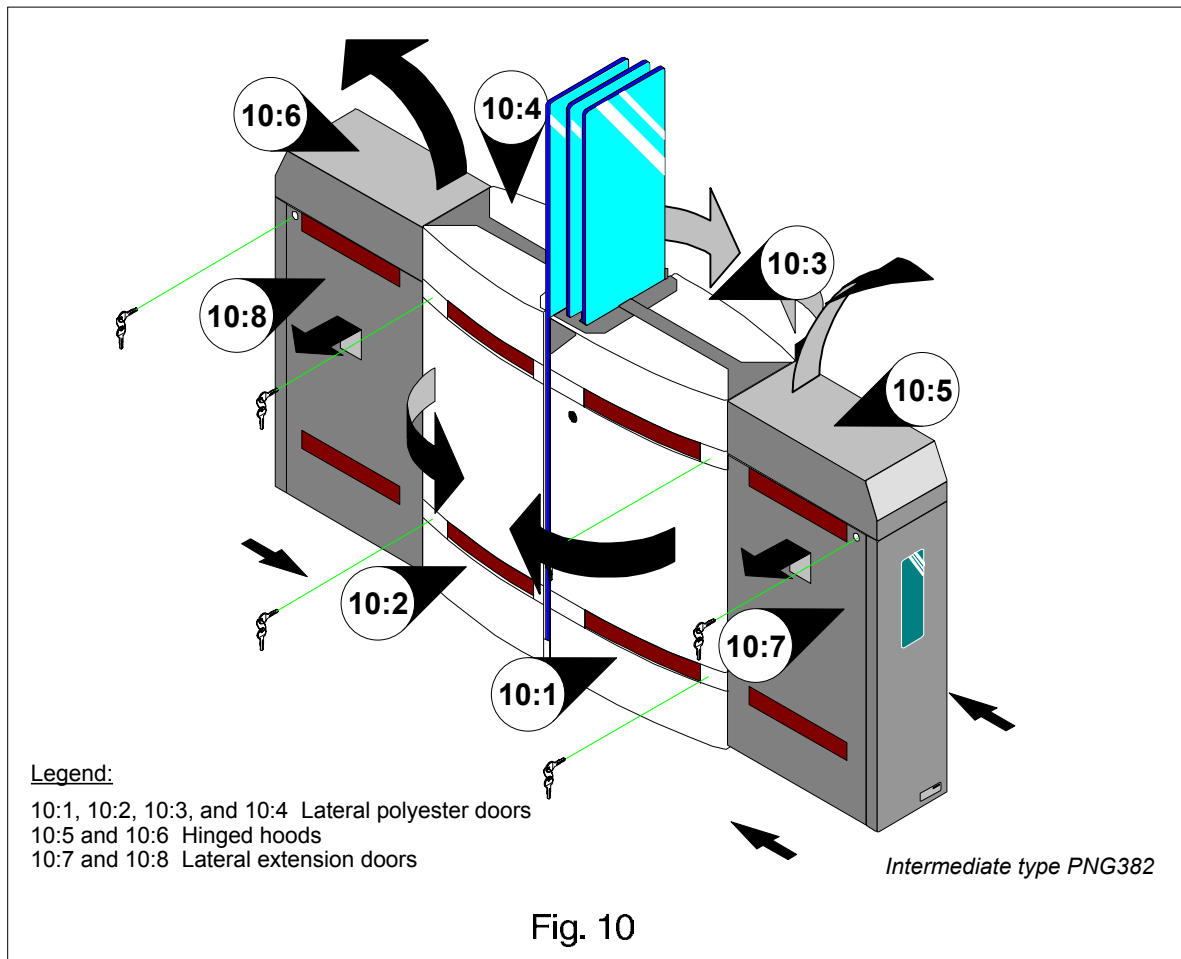


Plan No. CH3520
PNG382

Fig. 9

3. INSTALLATION

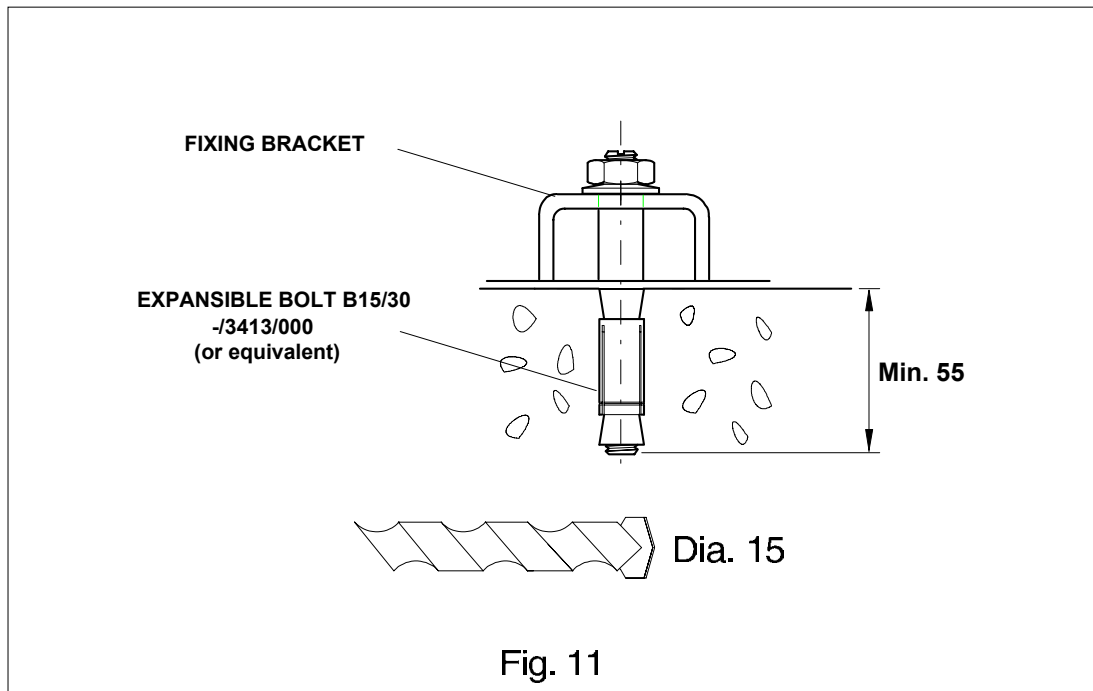
3.1. First step



- 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 lateral, hinged polyester doors (10:1) to (10:4). Keys are attached on the housing by means of adhesive tape.
- In the case of a PNG381 or PNG382, also unlock and open the hood(s) (10:5) and (10:6).
- In the case of a PNG381 or PNG382, also unlock and remove the lateral extension door(s) (10:7) and (10:8).
- Check the state of the material. Though it has been carefully packed, damage may have occurred during transport. If need be, proceed with the necessary repairs.

3.2. Preliminary work on site

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

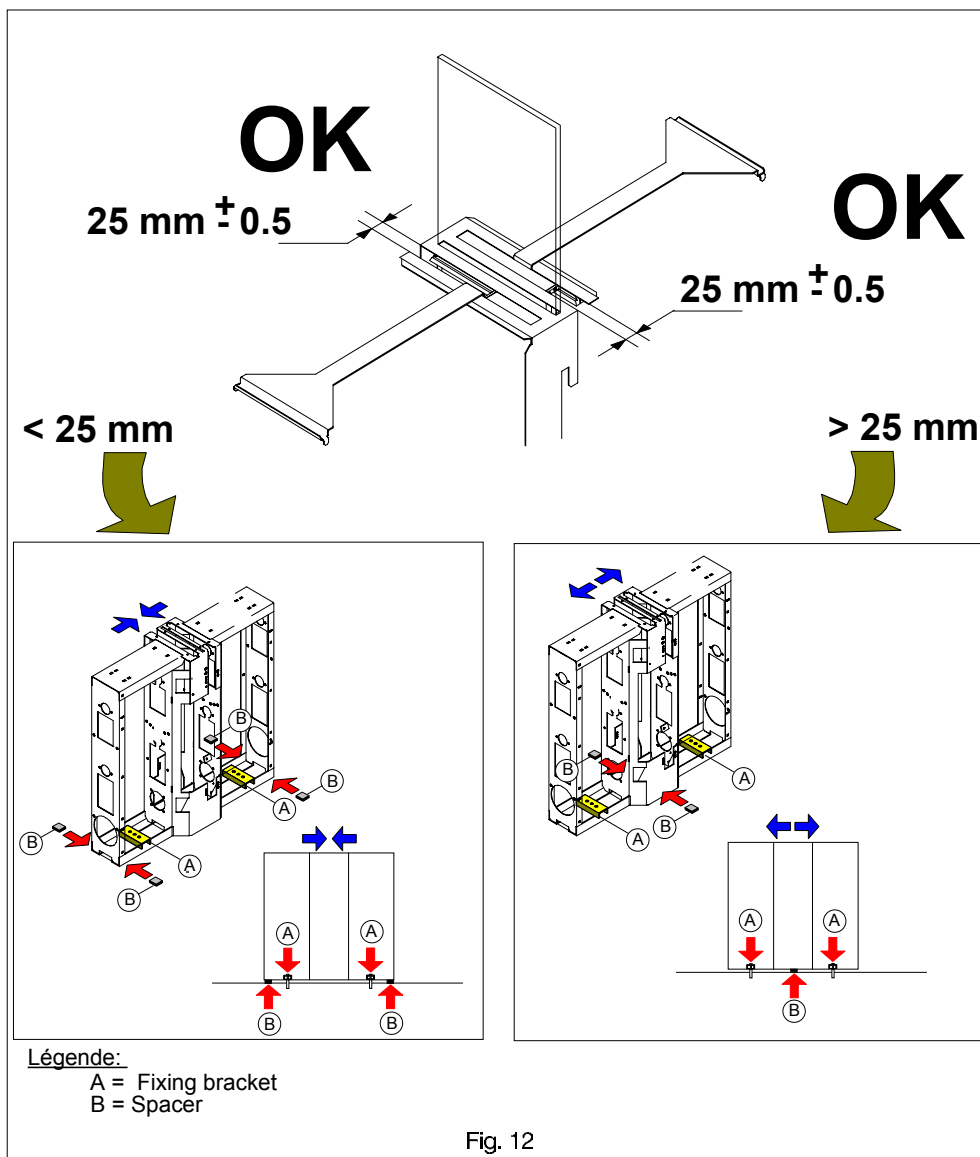


- ◆ Preparation of the electrical power supply and control cabling according to the specifications in chapter [2.9. General dimensions and installation plans (with cabling)].

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 gate on site precisely with the help of the fork-lift truck mentioned on previous page.
- Secure the gate firmly to the floor by tightening the two fixing brackets provided and using the expansible bolts.
- Make sure that all the housings of the battery are perfectly aligned and horizontal. If needed, add shims between the housings and the floor in order to make the gates level.

WARNING: To ensure the proper operation of the gate, confirm that the obstacles are perfectly vertical and that the frame is not distorted, even slightly.



3.4. Electrical connections

- The electrical connections must be made according to the electrical diagrams 1PNG04.012, 1PNG04.013, 1PNG04.014, and 1PICTO.002 supplied with the equipment (also enclosed to this manual).
- The PNG38x can also be connected to an IT network.

WARNING: Make sure that the power supply cables are not live.

3.4.1. Right or intermediate gate

Master lateral door (10:1):

- Connect the main single-phase power supply to the upper terminals L1 and L2 of the main magneto-thermal circuit breaker and to the upper terminal PE (earth), located beside the circuit breaker.
- Route the “passage allowed” control cables in direction A and B and bring them into the PLC compartment.
- Route the motor cables to the left gate.

Lateral door (10:2):

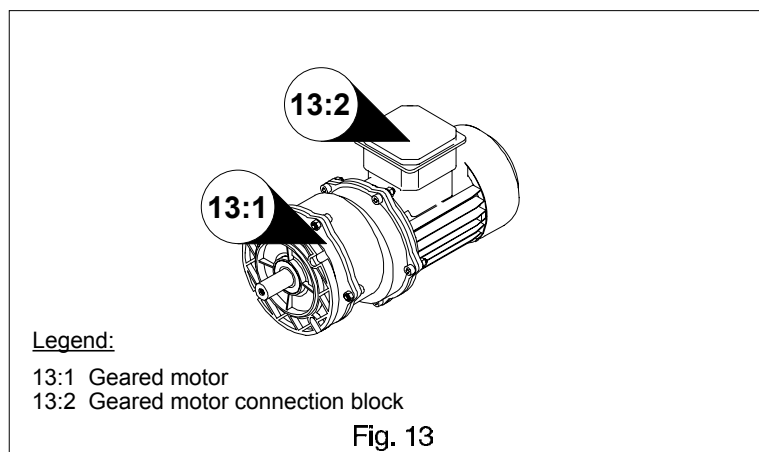
- Connect the intergate cable to the connector X6, referring to the proper electrical diagram.
- Connect the “passage allowed” control cable in direction A and B to the connection block X13.

3.4.2. Left gate

Lateral door (10:4):

- Connect the motor cable directly into the connection box (13:2) of the motor, respecting the polarity.

WARNING: Fix the cable by inserting the earth braid through the grommet.



- Connect the cable from the connector X6 according to the electrical diagram 1PNG04.013 for an intermediate gate or 1PNG04.014 for a left gate.

3.5. Initial power-up

- Ensure that the equipment is correctly earthed [earth bolt (3:9) located at the bottom of the housing inside the unit].
- Check the state of the fuses.
- Proceed to the other electrical connections depending on the specifications of the installation.
- Arm the overload protection of the variable speed controller circuit breaker (2:4).
- Arm the overload protection of the main magneto-thermal circuit breaker (2:1), located behind the master lateral door (10:1).
- Upon power-up, the initialization sequence provokes the electrical opening of the obstacles, that close immediately after. If the slave motor rotates in the wrong direction, switch off the main magneto-thermal circuit breaker (2:1), and reverse the connection of the two phases of the slave motor. Rearm the overload protection of the magneto-thermal circuit breaker (2:1) at the end of the procedure.
- Press RESET on the Programmable Logic Controller (PLC), which reactivates the initialization sequence. See the initialization sequence description in *paragraph* [4.5.1.].

4. TECHNICAL SECTION

4.1. Introduction

Before operating a series 380 PNG, it is necessary to programme the PLC. Resetting the PLC immediately activates this programming which determines the configuration of the PNG:

- type of PNG (380, 381A, 381B or 382),
- type of pictogram management (extended or limited) by passage direction,
- extension of the security zone in addition to CS : C6, C7, C13 or C14,
- operation mode of the readers (with or without passage authorization storage),
- activation level of the "evacuation" mode (**0** or **1**),
- possible locking of reader in pre-alarm or "intrusion".

THE OPERATION MODE IS ACTIVATED ONLY ONCE ALL OF THESE PARAMETERS HAVE BEEN DEFINED. ONLY RESETTING THE PLC MAKES REPROGRAMMING THE PNG POSSIBLE.

Note :

- All the parameters and time-outs are represented by the codes %M, %MW and %TM, as they are used on the FTX117 ADJ02 programming console.
- The "A3" symbols in the margin indicate the new functionalities of the A3 version of the software

4.2. Principles of operation

4.2.1. Types of fraud

Three types of fraud are treated. When a fraud is detected, the obstacle closes immediately. The buzzer is activated more or less rapidly according to the type of fraud.

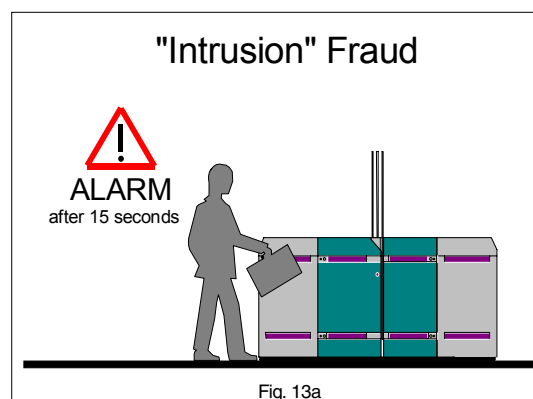
4.2.1.1. "Intrusion" Fraud (fig. 13a):

When the PNG is on stand-by, intrusion is detected as soon as there is a presence before at least one cell in an entrance corridor.

If the person is not authorized to pass, the PNG will sound an alarm after a time-out (% TM2) (15 sec by default): the buzzer is activated and the pictograms show a red cross.

The PNG will immediately sound an alarm if a presence is detected at the door-zone (photocell C6 or C7) during the time-out.

The alarm will end when there is no longer any presence in any of the two entrance corridors (A and B) and after a short time-out (%TM0) (1 sec by default)



4.2.1.2. "Tailgating" Fraud:

One or several persons without passage authorisation follow(s) another user who has presented a valid ticket. The buzzer is immediately activated. One of the three following situations is selected when programming the PNG (see paragraph [4.3. PNG configuration]):

a. "Tailgating" Fraud prior to passage through doors (fig. 13b)

If two presence zones, each comprising at least two activated cells and separated by at least one inactivated cell, are detected, "tailgating" fraud alarm is activated:

- the doors close in front of the authorized person unless the security zone is activated,
- the buzzer is activated,
- the pictograms show a red cross.

The alarm ends when there are no more than one zone detected and after a short time-out (% TM6) (1 sec by default). The doors will reopen if the authorized person has not passed through.

A3

Two cells per presence zone are default but may be changed to 1 (by means of the console) separately for corridor A and corridor B: parameter %MW21 or %MW22.

A3

b. Fraud zone before passage through doors (fig 13c)

If the number of activated cells within the same entrance zone exceeds a maximum value, the "tailgating" fraud alarm is activated:

- the doors close in front of the authorized person unless the security zone is activated,
- the buzzer is activated,
- the pictograms show a red cross.

The alarm ends when the number of activated cells will not more exceed the maximum value and after a short time-out (% TM6) (1 sec by default). The doors will reopen if the authorized person has not passed through.

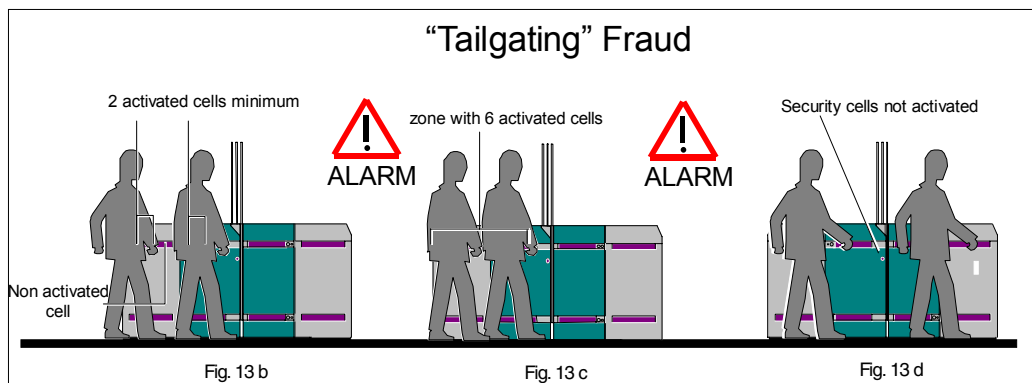
The maximum value is fixed at 6 by default, no fraud detection zone is possible by default. But this maximum value may be adapted between 1 and 6 (by means of the console): parameter %MW30.

A3

c. Nota Bene:

The "tailgating" fraud will only be operational with the default values for the extension corridor (PNG 381 or PNG382).

"Tailgating" fraud before passage may be made operational for PNG 380 by modifying the parameter values %MW30, %MW21 and/or %MW22 to 1 but bear in mind that there will consequently be a significant risk of false alarms.



d. “Tailgating” Fraud after passage through doors (fig. 13d)

If an unauthorized entry is detected, in the same direction, after an authorized person passes through the doors, the “tailgating” fraud alarm is activated:

- the doors close in front of the authorized person unless the security zone is activated,
- the buzzer is activated,
- the pictograms show a red cross.

The alarm will end after a short time-out (% TM6) (1 sec by default). If there is still a presence in the entrance corridor and if authorization is submitted in the meantime, the doors will open. Otherwise there will be an “intrusion” fraud (see above).

4.2.1.3. “Opposite direction” Fraud:

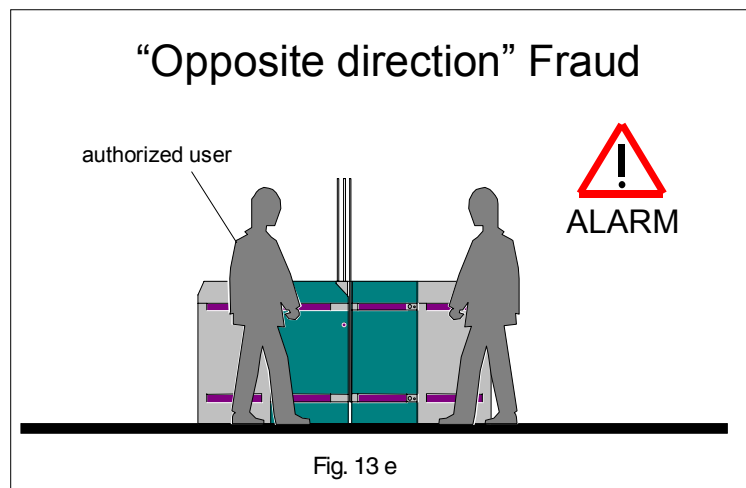
The PNG is operated in a controlled mode in one direction and a controlled or locked mode in the other direction.

A user presents a valid ticket and can enter the walkway. While the doors are open, any persons entering from the opposite direction (through the exit zone) will set-off an “opposite direction” fraud. An alarm is activated immediately:

- the doors close in front of the authorized person unless the security zone is activated,
- the buzzer is activated,
- the pictograms show a red cross.

The alarm will end when the exit zone has been freed and after a short time-out (% TM6) (1 sec by default). The doors will reopen if the authorized person has not yet passed through and the time-out allowed for authorized passage is returned to zero.

A3 By default detection of entry into the exit zone will take place over 3 cells: detection is activated when the first and the second cell are successively darkened while leaving the third free. It is possible to choose entry detection “opposite direction” for two cells in the PNG configuration procedure (DIP2 of word 3). In this event, detection will take place more quickly but there will consequently be an increased risk of false alarms during the passage of the authorized person.



4.2.1.4. “Opposite direction” fraud when free in one direction

The PNG is operated in a free mode in one direction and a controlled or locked mode in the other direction.

Entry through the controlled direction:

A user presents a valid ticket and can enter the walkway in the controlled direction. While the doors are open, a person enters in the opposite direction in free mode. Two types of “opposite direction” detection are possible:

- **reinforced detection:** “opposite direction” fraud is detected and an alarm is immediately activated:
 - the doors close in front of the authorized person unless the security zone is activated,
 - the buzzer is activated,
 - the pictograms show a red cross.
 The alarm will end when the exit zone has been freed and after a short time-out (% TM6) (1 sec by default). The doors will reopen if the authorized person has not yet passed through and the time-out allowed for authorized passage is returned to zero.
- **reduced detection:** no fraud is detected; no alarm will be activated.

Entry through the free direction:

A3

A user presents himself in the free direction and darkens the first cell, the doors open. While the doors are open, a person enters in the opposite direction (through the exit zone). Two types of “opposite direction” detection are possible:

- **reinforced detection:** “opposite direction” fraud is immediately detected.
- **reduced detection:** “opposite direction” fraud is not detected unless the user entering in the free direction has left his entrance corridor or is still in the extension zone of the corridor.

If fraud is detected, the alarm is activated:

- the buzzer is activated,
- the pictograms show a red cross,
- the doors will remain open in “reduced detection” mode and will close in the “reinforced detection” mode.

The alarm will end when the exit zone has been freed and after a short time-out (% TM6) (1 sec by default). If a presence is still detected in the free entry corridor, the time-out allowed for free passage is returned to zero.

Nota Bene:

Default “opposite direction” fraud is in reinforced mode but the reduced detection mode may be chosen during the PNG configuration procedure (DIP6 of word 3).

Detection of entry in the exit zone will always take place over 3 cells in this case.

4.2.2. Operation modes

The operation mode, programmed by an external control console or by DIP switches on the AS1007 board (2:7), defines the type of control exerted in both directions and the possible selection of the “evacuation” mode.

4.2.2.1. Obstacle state at rest

At rest, obstacles are positioned according to the state of the **SW3.6** DIP switch. In *Mode NO*, the obstacles are open at rest and will close in the event of unauthorized passage. The obstacles are closed at rest in *Mode NF* and will open in the event of authorized passage.

4.2.2.2. Controlled direction A - Controlled direction B

A passage authorization is necessary to pass in directions A and B.

4.2.2.3. Controlled direction A – Free direction B

A passage authorization is necessary to pass in direction A.

A3

Free passage in direction B. From the moment the first cell (C12 or C9 if there is no extension) has been darkened, the doors open (in mode NO, they remain open) and the direction B pictogram shows a green arrow. The doors close again in mode NF when corridor B has been freed and after a time-out (% TM1) (2 sec by default).

Choice of the type of “opposite direction” detection will take place in this operation mode. (see 4.2.1.4.)

4.2.2.4. Controlled direction A – Locked direction B

Passage authorization is necessary to pass in direction A. Nobody is allowed to pass in direction B.

4.2.2.5. Free direction A – Controlled direction B

Passage authorization is necessary to pass in direction B.

A3

Free passage in direction A. From the moment the first cell (C1 or C4 if there is no extension) has been darkened, the doors open (in mode NO, they remain open) and the direction B pictogram shows a green arrow. The doors close again in mode NF when corridor A has been freed and after a time-out (% TM1) (2 sec by default).

Choice of the type of "opposite direction" detection will take place in this operation mode. (see 4.2.1.4.)

4.2.2.6. Locked direction A – Controlled direction B

Passage authorization is necessary to pass in direction B. Nobody is allowed to pass in direction A.

4.2.2.7. Free direction A – Free direction B

Passage through the PNG is free in both directions.

The doors open in mode NF as soon as a cell is darkened in the PNG. They close again when no cells are darkened and after a time-out (%TM12) (3 sec by default).

4.2.2.8. Locked direction A – Locked direction B

No passage is allowed in either direction.

4.2.2.9. Free direction A – Locked direction B

Passage is free in direction A, but prohibited in direction B.

A3

From the moment the first cell (C1 or C4 if no extension) has been darkened, the doors open (in mode NO, they remain open) and the direction A pictogram shows a green arrow.

The doors close again in mode NF when corridor A has been freed and after a time-out (% TM1) (2 sec by default).

Choice of the type of "opposite direction" detection will take place in this operation mode. (see 4.2.1.4.)

4.2.2.10. Locked direction A – Free direction B

Passage is free in direction B, but prohibited in direction A.

A3

From the moment the first cell (C12 or C9 if no extension) has been darkened, the doors open (in mode NO, they remain open) and the direction B pictogram shows a green arrow.

The doors close again in mode NF when corridor B has been freed and after a time-out (% TM1) (2 sec by default).

Choice of the type of "opposite direction" detection will take place in this operation mode. (see 4.2.1.4.)

4.2.2.11. Evacuation mode

As soon as the "evacuation" mode is activated, the passage through the PNG is free in both directions. Obstacles are opened and remain open all time.

This operation mode has priority over all the others.

Evacuation may be activated either via the frequency switch in the event of a power failure (anti-panic system) or via contact between entrances X13.5 and X13.6 of connector X13 (in the event of a fire alarm,...). This latter contact may be defined NO or NF during the configuration procedure (DIP5 of word 3; this contact is NO by default).

Evacuation mode is activated as long as the contact is maintained.

4.2.3. Passage authorizations

Passage authorization comes either from a card reader or from any other access control system.

Note: For clarity in the manual, the abbreviation LC refers to a card reader and any other control system (push buttons...).

4.2.3.1. Passage authorization management

By default, passage authorization is managed through storage. It is possible to choose authorization management without storage during the configuration procedure (DIP 6 of word 2)

- Passage authorization storage:

An impulse contact between terminals X13.1 and X13.2 (X13.11 and X13.12) gives passage authorization in direction A (B). If several passage authorizations are presented, they will be added up and will give a right to as many passages.

- No passage authorization storage:

An impulse contact between terminals X13.1 and X13.2 (X13.11 and X13.12) gives a single passage authorization in direction A (B). If several passage authorizations follow one another before a passage is actually completed, they will not be taken into account and only one single passage will be authorized.

Once the passage has been authorized at least once, the corresponding pictogram will show a green arrow, the doors will open and a time-out will commence for non-passage:

Time-out for non-passage corresponds to the time during which the user may pass after passage authorization has been given. It is the %TM3 variable, the default value of which is 15 sec. If the time-out value is set at zero, the reader will manage this time-out, keeping the passage authorization signal active.

The doors close in mode NF:

- either when this time-out has expired; the passage authorization will consequently be cancelled,
- or when passage beyond the obstacles is detected and after a door closure time-out (% TM4 (0.5 sec by default)).

The PNG will return to its stand-by status after closing of the obstacles:

- either after an end of passage time-out (%TM7) (1 sec by default) if the PNG is entirely free
- or after time-out granted to the user to leave the exit zone (%TM9) (10 sec by default).

All new passage authorizations in the same direction will immediately be taken into account without waiting for the closing of the doors or the end of the time-outs.

A passage authorization in the opposite direction will not be taken into account until the PNG has returned to its stand-by status.

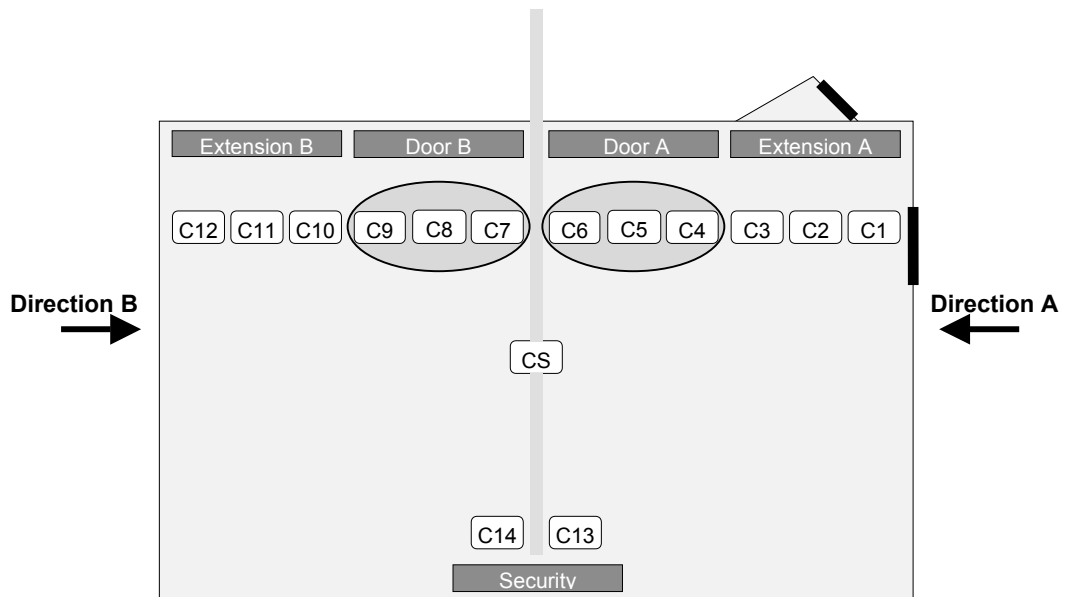
The "opposite direction" fraud is detected as long as the obstacle is not closed.

4.2.3.2. Detection of passage through doors

The programme follows the progression of the user in direction A in front of the successive cells C4, C5 and C6 (corridor A). Once cell C6 has been freed, passage detection is activated at the condition that several cells before the obstacle are free (by default : 3 cells : C4, C5 and C6).

The programme follows the progression of the user in direction B in front of the successive cells C9, C8 and C7 (corridor B). Once cell C7 has been freed, passage detection is activated at the condition that several cells before the obstacle are free (by default : 3 cells : C7, C8 and C9).

Passage detection through the doors validates the passage, deactivates the passage authorization and/or decreases the number of authorizations stored. This will result in the closure of the doors (in NF mode)



- A3** The number of cells which must be free before the door in order to validate detection may be modified via the parameter %MW29:
- %MW29 = 3 (default): this mode avoids deductions and false closures of obstacles but is suitable for average flows
 - %MW29 = 2: this mode is appropriate for better deductions in the event of large flows.

4.2.3.3. Passage contact

- A3** Each time a passage is detected in direction A (B), in all operation modes, a 700 ms impulse is generated by contact between terminals X13.7 and X13.8 (X13.17 and X13.18).
- The passage contact may be given at two different times following the value of the parameter %M34:
- %M34 = 0 (by default):** the passage contact is given when the entry zone is exited in the direction of passage. This method maximizes passage flow.
- %M34 = 1:** the passage contact is given when the person has passed in the correct direction and has completely left the PNG, and when the obstacles have been closed. In this event, authorization storage is not possible as the obstacles have to close after each person. This method slows down the flow but maximizes control.

4.2.3.4. Locking of the card reader

The card reader receives a piece of information which locks it in some circumstances. The contacts between exits X13.9 and X13.10 (X13.19 and X13.20) are activated in direction A (B) in order to inform that the PNG is occupied. A jumper allows use of an NO or NF contact. The reader is locked in direction A (B) in the following situations:

1. *Evacuation mode*
2. *Free mode direction A (B)*
3. *Locked mode direction A (B)*
4. *Passage in progress direction B (A) in free or controlled mode*
5. *Passage in progress direction A (B) without reader storage*
6. *Opposite direction fraud*
7. *According to the initialization, intrusion (pre-alarm) direction A (B)*

Note: *The reader is not locked in the event of "tailgating" fraud so that the user does not have to walk back to present his ticket.*

4.2.4. Safety on obstacle closing

During the door closing movement, if the closing limit switch is not reached before the end of the time-out %TM10 (4 sec by default), the obstacles will reopen during a time-out %TM11 (2 sec by default) and then close again.

This sequence is permanently activated if the closing limit switch is never reached.

4.2.5. Safety on obstacle opening

A3

If there is a presence in the safety zone when the doors are closed and they have to reopen, they will remain closed while the safety zone is not free. Once the safety zone has been freed, the doors will open if opening command is still active and after a short time-out (%TM13) (0.3 sec by default).

4.2.6. Safety zone

A3

The safety zone always consists of the CS cell, placed between mobile glass and **safety bands** installed on fixed glass. These bands consist of transmitter and receiver cells. This is an optional equipment.

Warning: *If the safety bands are not installed on the PNG fixed glass, entrances X13.15 and X13.16 must be shunted.*

It is possible to add other cells to the safety zone during the PNG configuration procedure: C6, C7, C13 and/or C14 (DIP2 to DIP5 of word 2)

If the doors are open, any presence in this safety zone will keep the doors open. If the doors are closed, any presence in this safety zone will prevent the doors from opening.

4.2.7. Variable speed controller management

A3

The opening command is transmitted by the PLC to the variable speed controller through a binary variable. The activation level for this variable may be selected during the configuration procedure:

- DIP 1 of word 3 = 0:
 - if the variable is activated at 1, the variable speed controller will receive an opening command
- DIP1 of word 3 = 1:
 - if the variable is activated at 1, the variable speed controller will receive a closing command.

The choice of this DIP's position is depending on the type of the variable speed what is installed in the PNG and on his activation mode. The appropriate position of the DIP is fixed by the factory.

An opening command is transmitted to the variable speed controller in the following circumstances:

- the programme gives an opening command,
- there is a presence in the safety zone
- the PNG is closed for safety
- the PNG is on NO standby
- the programme is in the starting up stage.

In all other circumstances, a closing command is transmitted.

4.2.8. Pictograms

A pictogram indicates what the user can or should do in the direction in which he presents himself. There are two types of pictograms:

- orientation pictogram: it may display a red cross or a green arrow,
- function pictogram: it may display a red cross, a green arrow or an orange card

Only one sign is lit at any time for each pictogram.

Two types of management are available for the pictograms: the *extended* mode and the *limited* mode.

If no pictogram has been installed on the PNG, it does not matter what type of management is selected.

4.2.8.1. Limited mode

This operation mode is applied if the operation pictogram is not installed or is not activated.

The orientation pictogram always informs the user about what he can or should do.

The "green arrow" shows that the passage is authorized.

The "red cross" shows that the passage is prohibited.

4.2.8.2. Extended mode

In this mode, the two pictograms are installed on the PNG.

4.2.8.2.1. Orientation pictogram

It directs the user to the operating walkway in the relevant direction.

"Green arrow": operating walkway
appears in "controlled" or "free" mode

"Red cross": passage prohibited
appears in "locked" or "out-of-order" mode.

4.2.8.2.2. Function pictogram

This pictogram shows the user what he can or should do.

"Card": waiting for passage authorization ("Insert your card")

"Green arrow": passage authorized ("Walk")

"Red cross": passage prohibited ("Wait")

4.2.8.2.3. "Passage authorization storage" configuration

If only one passage authorization is granted, the "card" turns into a "green arrow". When the user is in the zone before the obstacle, the "green arrow" is replaced by a "card".

If several passage authorizations are in progress, the "card" becomes a "green arrow". When the last user allowed to pass is in the zone before the obstacle, the "green arrow" is replaced by a "card".

4.2.8.2.4. "No passage authorization storage" configuration

The "green arrow" appears after a passage authorization. The "red cross" appears when the user is in the zone before the obstacle. The "card" is again displayed after detection of passage through the obstacle.

4.2.8.3. Alarm operation

When an alarm is activated after the detection of a fraud, in limited mode, the orientation pictogram will display a "red cross" and in extended mode, the operation pictogram will display a "red cross".

4.3. PNG configuration

Three "configuration words" determine the operation mode of the PNG series 380. The PNG is configured by positioning the **SW3 (2:7)** DIP switches on the AS1007 interface board on ON (1) or OFF (0). Press the push buttons as indicated in the procedure below in order to validate a configuration word.

After the initial configuration, the parameters can be modified by means of the programming console FTX117 ADJ02 to be connected on the plug **(2:9)** of the PLC.

Procedure

Note: the DIP values in bold correspond to the factory configuration

Warning: Do not press the DIAG button!
If you press on **DIAG** for more than 5 seconds after switch-on or resetting, you will erase the programme and the PNG cannot be operated

1. Switch off the PNG main power supply.
2. Switch off the variable speed controller power supply.
3. Disconnect the connector X15.low (Desk), the connectors X13.low (LC.A.) and X13.up (LC.B.).
4. Switch on the main power supply.
5. Press RESET (the button **(2:8)** is located on the PLC fascia).
6. Set the DIP switches according to the tables below in order to configure **word 1.**

6.a. PNG type

DIP 1	DIP 2	Configuration
0	0	PNG380
0	1	PNG381A
1	0	PNG381B
1	1	PNG382

6.b. Management of pictograms direction A (See Chapter 4.2.3.)

DIP 4	Configuration
0	Limited management
1	Extended management

6.c. Management of pictograms direction B (See Chapter 4.2.3.)

DIP 6	Configuration
0	Limited management
1	Extended management

6.d. DIP 3 and DIP 5 always at 0

7. Press the L.C.A. push-button **(2:11)**, wait for the validation signal and release the button.
8. Set the DIP switches according to the tables below in order to configure **word 2.**

A3

8.a. DIP 1 always at 0

8.b. Management of cell C6 in the safety group (See Chapter 4.2.7.)

DIP 2	Configuration
0	C6 excluded from the safety zone
1	C6 included in the safety zone

8.c. Management of cell C7 in the safety group (See Chapter 4.2.7.)

DIP 3	Configuration
0	C7 excluded from the safety zone
1	C7 included in the safety zone

8.d. Management of cell C13 in the safety group (See Chapter 4.2.7.)

DIP 4	Configuration
0	C13 excluded from the safety zone
1	C13 included in the safety zone

8.e. Management of cell C14 in the safety group (See Chapter 4.2.9.)

DIP 5	Configuration
0	C14 excluded from the safety zone
1	C14 included in the safety zone

8.f. Management of passage authorizations (See Chapter 4.2.7.)

DIP 6	Configuration
0	No passage authorization storage
1	Passage authorization storage

9. Press the L.C. B push-button (2:11), wait for the validation signal and release the button.

10. Set the DIP switches according to the tables below in order to configure **word 3**.

10.a. Level of activation of the variable speed controller (See Chapter 4.2.8.)

A3	DIP 1	Configuration
	0	Opening of the obstacles on VSC activation
	1	Closure of obstacles on VSC activation

10.b. Detection of *opposite direction* fraud

A3	DIP 2	Configuration
	0	Detection of <i>opposite direction</i> entrance over 3 cells
	1	Detection of <i>opposite direction</i> entrance over 2 cells

10.c. *Tailgating* fraud detection before passage through doors by counting the zones

DIP 3	Configuration
0	No <i>tailgating</i> detection before passage through doors
1	<i>Tailgating</i> detection before passage through doors

10.d. LC locking in the event of pre-alarm or intrusion

DIP 4	Configuration
0	No LC locking on intrusion pre-alarm
1	LC locking on intrusion pre-alarm

10.e. Activation level of the *evacuation* mode

DIP 5	Configuration
0	<i>Evacuation</i> if connection 5-6 of X13 is open
1	<i>Evacuation</i> if connection 5-6 of X13 is closed

10.f. Detection of *opposite direction* fraud in "Free exit" mode

DIP 6	Configuration
0	Reinforced detection " <i>opposite direction</i> " in "Free exit" mode
1	Reduced detection " <i>opposite direction</i> " in "Free exit" mode

11. Press the L.C. A and L.C.B push-button (2:11), wait for the validation signal and release the button. At this moment, the buzzer may sound (e.g., in operation mode, locked).
12. Switch off the PNG main power supply.

13. Configuration for **operation of the PNG**.

13.1. If no external desk is installed, set the DIP switches according to the tables below.

13.1.a. Absence of desk

DIP 1	Configuration
0	External desk activated
1	External desk deactivated

13.1.b. Configuration direction A

DIP 2	DIP 3	Configuration
0	0	Controlled direction A
0	1	Locked direction A
1	0	Free direction A

13.1.c. Configuration direction B

DIP 4	DIP 5	Configuration
0	0	Controlled direction B
0	1	Locked direction B
1	0	Free direction B

13.1.d. Position of doors at rest

DIP 6	Configuration
0	Doors closed at rest (NF)
1	Doors open at rest (NO)

13.2. If an external desk is installed, set all the DIP switches on OFF.

14. Reconnect the connectors X15.Low, X13.High and X13.Low.
15. Switch on the variable speed controller power supply.
16. Switch on the PNG main power supply.

From this moment on, the PNG is operational.

4.4. Time-outs, pulses and variables

All the values of the time-outs, periods and variables of the PNG programme stated below can be modified with the FTX117 ADJ02 console which is connected to the PLC. The table below shows also the default values.

Time-outs:

It is necessary to multiply the time-out value by the time base in order to obtain the duration in seconds.

Time-out	Name	Time base	Default value	Description
%TM0	T_intrusion	100ms	10	Maintains the alarm when the "intrusion" fraud cancels.
%TM1	T_free_open	100ms	20	Duration while the obstacle remains open after the user has left the entry zone in the "free in one direction" mode.
%TM2	T_pre-alarme	100ms	150	Time limit before activating the buzzer on intrusion.
%TM3	T_no_pass	100ms	150	Time limit before returning to stand-by mode if no passage after an authorisation.
%TM4	T_ferme_porte	100ms	5	Duration while the obstacle remains open after the user has left the entry zone in the "free in one direction" mode.
%TM5	T_contraire	100ms	10	Maintains the alarm active when "opposite direction" fraud cancels.
%TM6	T_train	100ms	10	Maintains the alarm active when "tailgating" fraud cancels.
%TM7	T_fin_pass	100ms	10	Time limit to return to the stand-by mode after a controlled passage.
%TM9	T_t_o_pass	100ms	100	Maximum time limit allowed to end the passage in progress after the obstacle closing.
%TM10	T_safe_open	100ms	40	During an obstacle closing sequence, if the corresponding limit switch is not reached by the end of this time-out, the obstacle reopens.
%TM11	T_safe_close	100ms	20	Duration while the obstacle remains open on a safety closure (<i>T_safe_open</i>).
%TM12	T_full_free	100ms	30	Duration while the obstacle remains open after the end of the passage in the PNG in "free in both directions" mode.
%TM13	T_wait_open	100ms	3	Time limit before opening the doors after cancellation of safety

A3

Period of contact:

Pulse	Name	Time base	Default value	Description
%MNO	M_new_lc_a	100ms	7	Passage pulse duration in direction A.
%MN1	M_new_lc_b	100ms	7	Passage pulse duration in direction B.

Variables:

Only the internal variables included below may be modified with the FTX117 console.

Variable	Name	Description
	Lc_mem_lc	Counting the number of passage authorizations: 0: no counting 1: counting
	Detect_p_t	<i>Tailgating</i> fraud detection before passage through doors_(DIP3 of word3): 0 : No <i>tailgating</i> detection before passage through doors 1 : <i>Tailgating</i> detection before passage through doors
A3	Sel_pass	Type of passage contact : 0: Passage contact when the person has left the entry zone 1: Passage contact when the person has completely left the PNG
A3	Mode_sens_contraire	Detection of <i>opposite direction</i> fraud (DIP2 of word3): 0 : Detection of <i>opposite direction</i> entrance over 3 cells 1 : Detection of <i>opposite direction</i> entrance over 2 cells
	Ext_cel_a	Cell extension – direction A: 0: absent (PNG380) 1: present (PNG381-PNG382)
	Ext_cel_b	Cell extension –direction B: 0: absent (PNG380-PNG381) 1: present (PNG382)
A3	Mode_sortie_libre	Type of detection of <i>opposite direction fraud</i> in “Free exit” mode (DIP6 of word3): 0 : Reinforced detection 1 : Reduced detection
	Act_evacuation	Activation level of the <i>evacuation</i> mode (DIP5 of word3): 0 : <i>Evacuation</i> if connection 5-6 of X13 is open 1 : <i>Evacuation</i> if connection 5-6 of X13 is closed
	Phase_png	Program stage.
	Cfg_pic_a	Configuration of pictograms in direction A: 0: limited management 1: extended management
	Nb_lc_a	Number of passage authorisations in direction A
	Nb_lc_b	Number of passage authorisations in direction B
	Cfg_safe	Configuration of safety system: Bit 1 0: C6 excluded from the group 1: C6 included in the group Bit 2 0: C7 excluded from the group 1: C7 included in the group Bit 3 0: C13 excluded from the group 1: C13 included in the group Bit 4 0: C14 excluded from the group 1: C14 included in the group
	Cfg_pic_b	Configuration of pictograms in direction B: 0: limited management 1: extended management
	Cel_state	State of the cells: X15 indicates the state of the cell C1; X14 of C2; X13 of C3... X1 of CS; X0: 0
A3	Min_cel_zone_a	Detection of the number of zones: number of cells per zone in direction A Default value 2.
A3	Min_cel_zone_b	Detection of the number of zones: number of cells per zone in direction B default value: 2.
A3	Nb_cel_pass	Number of free cells for detection of passage through doors.
A3	Max_cel_zone	Maximum number of cells in an entrance zone before starting a zone fraud.

4.5. Adapting the configuration parameters

- When the programme is in operation mode (and not in programming mode), the parameters can be modified according to the following procedure by means of the FTX117 console.

a) Start-up

1. Plug the console in.
2. Wait for the **CONNECTION** menu to appear.
3. Select **MASTER** with the vertical arrows.
4. The **ADJUST** menu appears.
5. With the horizontal arrows, select **2 Dat** then **ENTER**.
6. The console is ready.

b) Variable setting

In order to force **%M3**, **%M46**, **%M47** temporarily, introduce the name of the variable validated by the **ENTER** key. Then type **0** or **1** followed by **ENTER**.

Example: **%M3** – Counting the number of passage authorizations

1. Press the **%M** key followed by **3** and **ENTER**.
2. Type **0** or **1** followed by **ENTER**.

In order to definitely force **%M3**, **%M46**, **%M47**, introduce the variable name validated by the **ENTER** key. Press the **MENU** key. Choose **bit** with the horizontal arrows and then **0** (forced to 0) or **1** (forced to 1) with the vertical arrows. Then press **ENTER**.

Example: **%M3** – Counting the number of passage authorizations

1. Press the **%M** key followed by **3** and **ENTER**.
1. Press the **MENU** key.
2. Choose **bit** with the horizontal arrows.
3. Choose **0** or **1** with the vertical arrows.
4. Validate with the **ENTER** key.

The **%MW0** and **%MW12** variables cannot be modified. They are respectively used to display the PNG programming stage and the PNG cell state.

For **%MW1** and **%MW8**, introduce the name of the variable validated by the **ENTER** key. Then enter the selected value.

Example: **%MW1** – Configuration of pictograms in direction A

1. Press the **%MW** key followed by **1** and **ENTER**.
2. Type **0** (limited management) or **1** (extended management) followed by **ENTER**.

Proceed as follows for the **%MW4** variable (Configuration of the safety system).

1. Press the **%MW** key followed by **4** and **ENTER**.
2. Select **Menu**.
3. Select **Cnv** then **ENTER** with the horizontal arrows.
4. Select **Bin** then **ENTER** with the vertical arrows.
5. Position the cursor in order to display the **X0** bit (corresponding to the CS cell).
6. Type **0** or **1** followed by **ENTER**.
7. Position the cursor in order to display the **X1** bit (corresponding to the C6 cell).
8. Type **0** or **1** followed by **ENTER**.
9. Position the cursor in order to display the **X2** bit (corresponding to the C7 cell).
10. Type **0** or **1** followed by **ENTER**.
11. Position the cursor in order to display the **X3** bit (corresponding to the C13 cell).
12. Type **0** or **1** followed by **ENTER**.
13. Position the cursor in order to display the **X4** bit (corresponding to the C14 cell).
14. Type **0** or **1** followed by **ENTER**.
15. Select **Menu**.
16. Select **Cnv** then **ENTER** with the horizontal arrows.
17. Select **Dec** then **ENTER** with the vertical arrows.

c) Adjusting the time-outs and monostables

Follow the instructions below for each time-out (from %TM0 to %TM12) and monostable (%MNO and %MN1).

1. Press the %TM or %MN key followed by the corresponding number and ENTER.
2. Place the cursor on %TMx.P or %MNx.P with the vertical arrows.
3. Introduce the new value.
4. Press ENTER.

Example: %TM0 –Buzzer alarm duration

1. Press the %TM key followed by 0 and ENTER.
2. Place the cursor on %TM0.P with the vertical arrows.
3. Introduce the new value.
3. Press ENTER.

4.6. Visualization and description of entries on the PLC

FTX117 or programme reference	PLC LED	Attribution
I3.0	0	Cell 1
I3.1	1	Cell 2
I3.2	2	Cell 3
I3.3	3	Cell 4
I3.4	4	Cell 5
I3.5	5	Cell 6
I3.6	6	Cell 7
I3.7	7	Cell 8
I3.8	8	Cell 9
I3.9	9	Cell 10
I3.10	10	Cell 11
I3.11	11	Cell 12
I3.12	12	Cell 13
I3.13	13	Cell 14
I3.14	14	Safety cell CS
I3.15	15	VSC default
I3.16	16.0	DIP – Key
I3.17	16.1	DIP direction A – Input 1
I3.18	16.2	DIP direction A – Input 2
I3.19	16.3	DIP direction B – Input 1
I3.20	16.4	DIP direction B – Input 2
I3.21	16.5	DIP – Obstacle mode NO/NF
I3.22	16.6	Door 1 opening limit switch
I3.23	16.7	Door 1 closing limit switch
I3.24	16.8	Door 2 opening limit switch
I3.25	16.9	Door 2 closing limit switch
I3.26	16.10	Card reader – Passage authorization – Direction A
I3.27	16.11	Reader A – Badge denied
I3.28	16.12	Evacuation
I3.29	16.13	Card reader – Passage authorization– Direction B
I3.30	16.14	Reader B – Badge denied
I3.31	16.15	Safety extension

Note: In order to display the inputs from I16.0 to I16.15 thanks to the PLC LEDs, press the « DIAG » button for less than one second until the digit 16 appears.

4.7. Visualization and description of entries on the PLC

FTX117 or programme reference	PLC LED	Attribution
Q4.0	0	NO mode display
Q4.1	1	NF mode display
Q4.2	2	Controlled – Direction A display
Q4.3	3	Free – Direction A display
Q4.4	4	Locked – Direction A display
Q4.5	5	Controlled – Direction B display
Q4.6	6	Free – Direction B display
Q4.7	7	Locked – Direction B display
Q4.8	8	Pulse contact – Direction A
Q4.9	9	Passage contact – Direction B
Q4.10	10	Display – Technical alarm
Q4.11	11	Display – Fraud
Q4.12	12	VSC – Opening command
Q4.13	13	VSC – Opening limit switch
Q4.14	14	VSC – Closing limit switch
Q4.15	15	Reserve 1
Q4.16	16.0	Cross orientation pictogram – Direction A
Q4.17	16.1	Arrow orientation pictogram – Direction A
Q4.18	16.2	Arrow operation pictogram – Direction A
Q4.19	16.3	Cross operation pictogram – Direction A
Q4.20	16.4	Card orientation pictogram – Direction A
Q4.21	16.5	LCD pictogram – Strobe
Q4.22	16.6	Cross orientation pictogram – Direction B
Q4.23	16.7	Arrow orientation pictogram – Direction B
Q4.24	16.8	Arrow operation pictogram – Direction B
Q4.25	16.9	Cross operation pictogram – Direction B
Q4.26	16.10	Card orientation pictogram – Direction B
Q4.27	16.11	Card reader – Passage contact– Direction A
Q4.28	16.12	Card reader – Reader locking – Direction A
Q4.29	16.13	Card reader – Passage contact – Direction B
Q4.30	16.14	Card reader – Reader locking – Direction B
Q4.31	16.15	Reserve 2

Note: In order to display the inputs from Q16.0 to Q16.15 thanks to the PLC LEDs, press the « DIAG » button **for less than one second** until the digit **16** appears.

4.8. AS1007 Interface board

The AS1007 board serves as an interface between the PLC on the one hand and the rest of the equipment and peripherals of the client on the other.

4.8.1. Connectors

The different connectors are as follows:

- Connector X1-X5 – cell bands
- Connector X6 – intergate
- Connector X7 – exit reserves
- Connector X8 – PLC power supply
- Connector X9 – power supply input
- Connector X10 – reserve power supply
- Connector X11 – direction A orientation pictogram
- Connector X12 – miniature contact breaker limit switch for right obstacle
- Connector X13 – card readers
- Connector X14 – notification (console + client)
- Connector X15 – console – VSC
- Connector X16 – operation pictogram
- Connector X18-X21 – PLC connection

The detail of the connectors is indicated in figure 14b.

4.8.2. Relay outputs

The AS1007 board supplies several free potential contacts through relays for the following information:

- Direction A passage contact
- Direction A reader locking
- Direction B passage contact
- Direction B reader locking
- Technical alarm
- Fraud alarm

Each contact may be defined in NO or NF mode by adjusting the jump position under the corresponding relay. Contacts are in NO mode in default.

	NO	NF	Contact except potential	Markers
JP1			Technical alarm	X14.24,25
JP2			Fraud	X14.26,27
JP5			Passage contact direction A	X13.7,8
JP6			Reader lock direction A	X13.9,10
JP7			Passage contact direction B	X13.17,18
JP8			Reader lock direction B	X13.19,20

Continuation of the table: JP4, JP3, JP5, JP6, JP7, JP8, NO

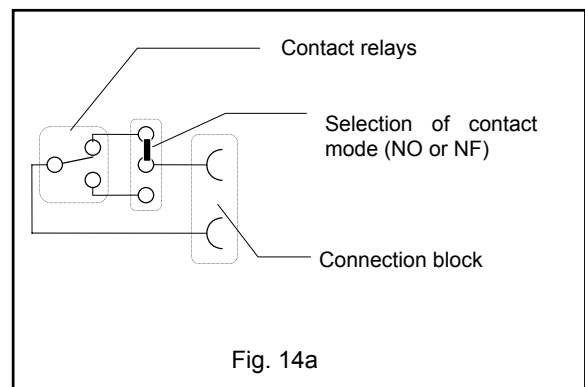


Fig. 14a

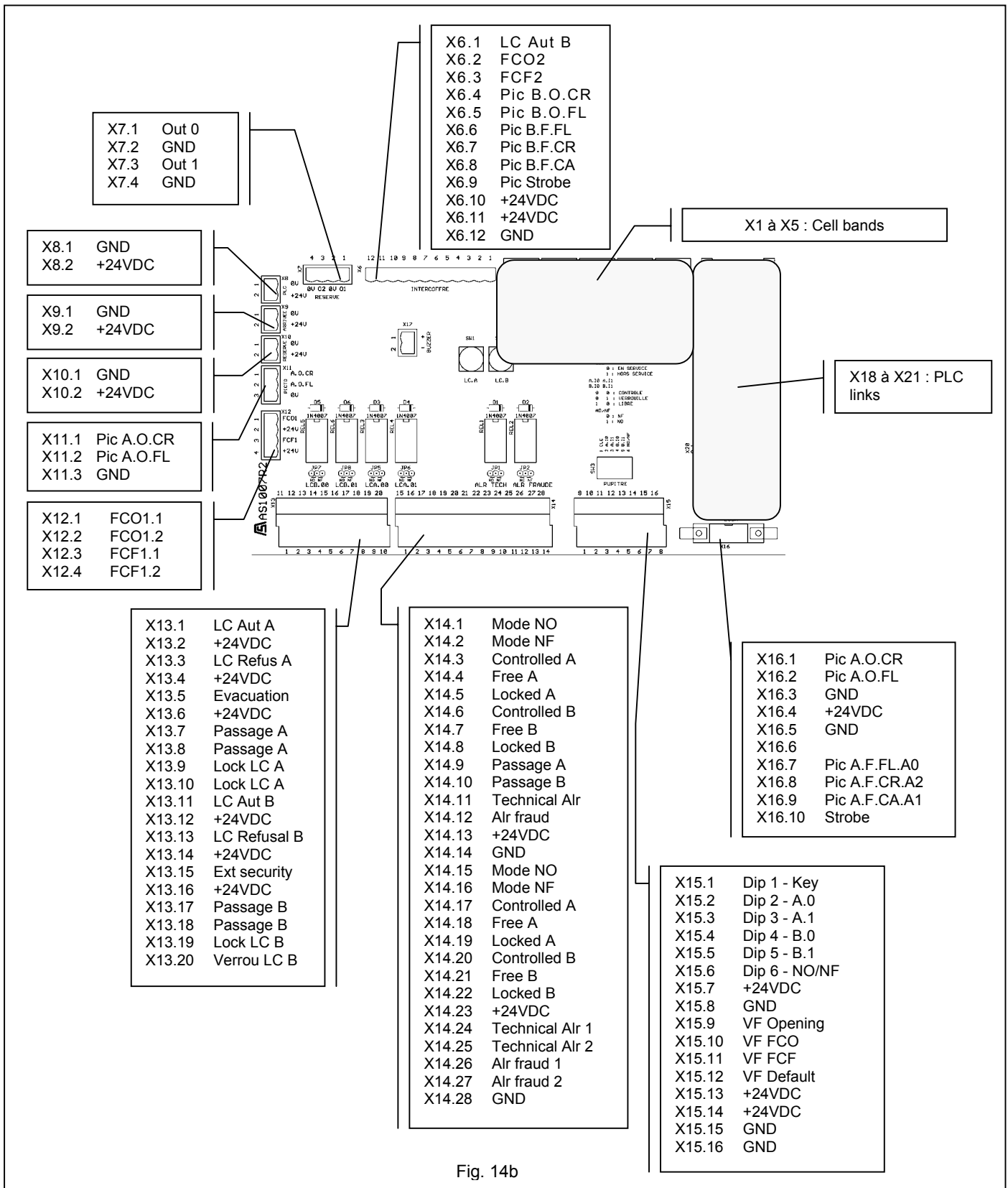


Fig. 14b

A3

Warning: If the safety bands are not installed on the PNG fixed glass, entrances X13.15 and X13.16 must be shunted.

4.9. Variable speed controller configuration

The VSC EPROM is programmed by means of the DIP switches on the electronic board.

1. Operation mode: set DIP 1 on OFF and DIP 2 on ON.
2. In order to programme the intensive test, set DIP 3 on ON.
3. In order to select the door opening on power failure, set DIP 4 on ON.
4. Door opening:

DIP 5	DIP 6	TIME	DOOR TYPE	
0	1	0.3 seconds		Low doors
1	0	0.4 seconds		
1	1	0.6 seconds	High doors	Low doors
0	0	0.7 seconds		

5. Door closing:

DIP 7	DIP 8	TIME	DOOR TYPE	
0	1	0.6 seconds		Low doors
1	0	0.9 seconds		
1	1	1.3 seconds	High doors	Low doors
0	0	1.6 seconds		

IMPORTANT: *The equipment you have received is configured as "minimum risk" for users. It is possible to increase the obstacle closing speed in order to reinforce control and consequently reduce fraud. As the risk for users is increased in this case, you might have to prohibit access to animals and unaccompanied children.*

5. FINAL STEP

5.1. Check-list

- Before commissioning the gate, check if all cables and wires are correctly fixed, and proceed with the various electrical tests: opening and closing of the obstacles, proper operation of the detection photocells, function and/or orientation pictograms (options), readers (client's supply), etc.
- Check if all wires are firmly connected to their respective terminal blocks.
- Check if the yellow LED of all cells is on in stand-by mode, and make sure the corresponding LEDs are also on on the PLC fascia and go off whenever the cells are occulted. If needed, adjust the cells referring to *paragraph [8.2. Detection photocell adjustment]*.
- For each mechanical group, check if the obstacle is properly locked after an opening movement (passage-way closed), with motor stopped, and if it is fully integrated into the housing after a closing movement (passage-way free), also with motor stopped. If not, refer to *paragraph [8.1. Limit switch cam adjustment]*.
- Check the constance (tolerance +/-0.5mm) of the slot width on the upper part of the gate and which accommodates the obstacle in open position (passage-way free). The synthetic shutter closes this slot for safety purposes when the obstacle is out of the housing. In the case of a PNG380 without fixed obstacle, the slot is not present.
- Check (if this option is programmed in the variable speed controller) if the obstacle opens properly in case the equipment is powered off, i.e., proper operation of the anti-panic device.
- Check if all screws and nuts have been tightened firmly.
- Check if you did not forget any tool remaining inside the gate.
- Remove any foreign body from the inside of the gate (scraps, etc.), and clean.
- In the case of a PNG381 or PNG382, replace and lock the lateral extension door(s) **(10:7)** and **(10:8)**.
- In the case of a PNG381 or PNG382, close and lock the hood(s) **(10:5)** and **(10:6)**.
- Close and lock the lateral, hinged polyester doors **(10:1)** to **(10:4)**.

⇒ 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]*. All adjustments are of the electronic type. Please contact Automatic Systems for more details.

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

WARNING: Make sure that the power supply cables are not live.

- Unlock and open the lateral, hinged polyester doors (10:1) to (10:4).
- In the case of a PNG381 or PNG382, also unlock and open the hood(s) (10:5) and (10:6).
- In the case of a PNG381 or PNG382, also unlock and remove the lateral extension door(s) (10:7) and (10:8).
- Switch off the main magneto-thermal circuit breaker (2:1).
- Switch off the variable speed controller circuit breaker (2:4).
- Follow in the reverse order all the steps described in *paragraph [3.4. Electrical connections]* and disconnect the power supply, control, and earth cables to and between each gate.
- Disconnect any other external cabling.

5.2.2. Removing the gate

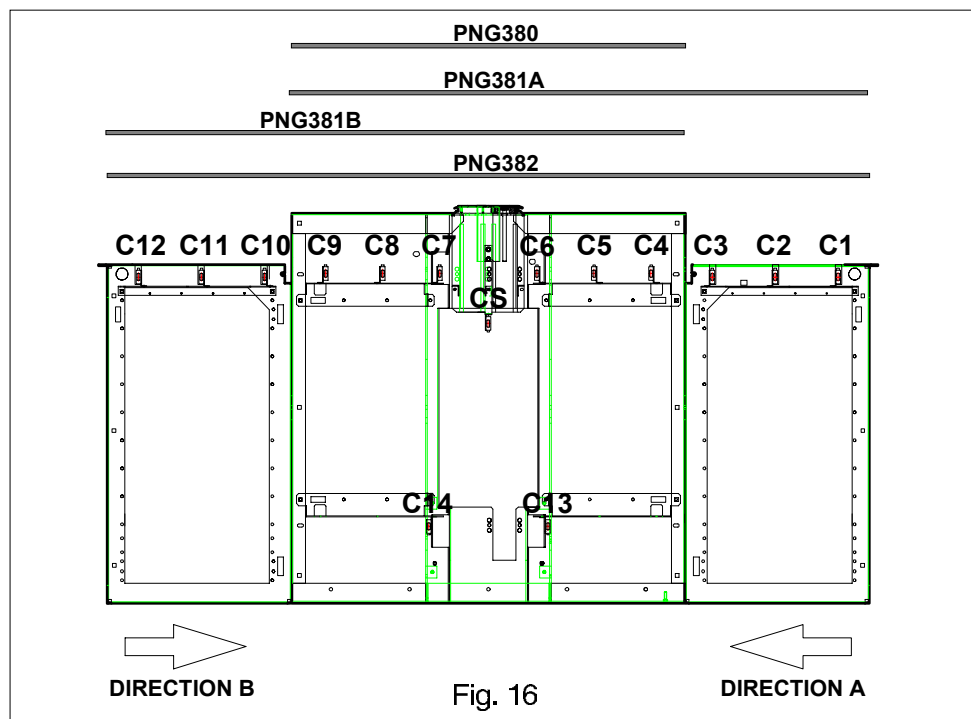
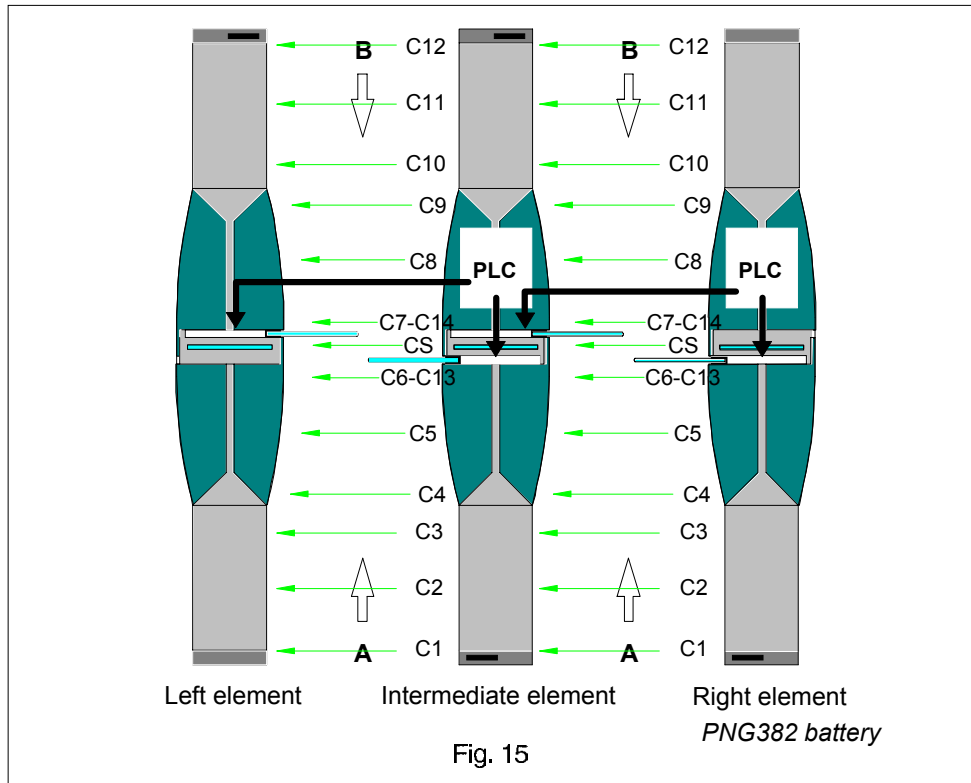
- Loosen the four expansible bolts so that you can release the fixing brackets.
- Remove the fixing brackets from the housing.
- With the help of a fork-lift truck, remove the gate from the installation site.

5.3. Scrapping the equipment

- When the equipment is withdrawn from use, proceed with the dismantling procedure as described in *paragraph [5.2. Temporary dismantling]*. Do not fail, however, to empty the oil from the geared motor (13:1) on each mechanical group and to scrap the various elements of the machine in the appropriate way (metal parts, electronic components, etc.) in line with your country code/regulations.

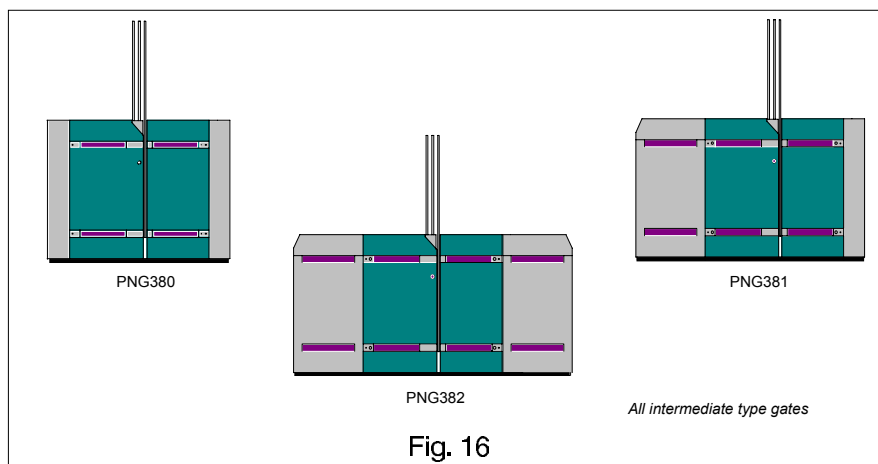
6. OPERATION

6.1. System overview



6.2. General principle of operation

- When the PNG gate is in service and in stand-by mode, it has the following status:
 - ⇒ Obstacles open (PNG/NO) or closed (PNG/NC).
 - ⇒ Message "Insert card" displayed on the function pictogram (option) to indicate the operational status of the gate. The message "Passage in service" exhibited on the approach (or "orientation") pictogram (option) to indicate that the passage direction has been selected from the control desk (option).
 - ⇒ "Red cross" pictogram and "No passage" indication (options) displayed in the unauthorised direction, from the control desk.
- All photocells are connected in detection: passing **any of these cells** without prior authorisation triggers the fraud alarm, i.e.:
 - ❶ Closing of the gate in case of a "Normally Open" configuration. In a "Normally Closed" configuration, the passage-way remains closed.
 - ❷ Illumination of the red cross on the function pictogram.
 - ❸ Activation of an audible local signal and an alarm contact after a programmable time limit (the time-out is typically set to 15 seconds).
- The alarm goes off automatically after a pre-determined (programmable) time-out if there is no more interruption of the detection beam, i.e., if nothing is detected between a cell and its corresponding reflector. In this case, the PNG automatically returns to stand-by mode.
- All photocells are spread all along the passage-way. The risk from fraud is thus reduced further, since the infrared photocells are occulted by a continuous smoked plexiglass strip that hides their position from users.
- The lower photocells (C13 and C14) still considerably increase the efficiency of the PNG, since they have the function of a contact mat. (Optional on the PNG380.)
- The system also sets off the technical alarm in case of anomalies, e.g., triggering of the electrical protection of a motor (magneto-thermal circuit breaker), etc.
- These faults are visually indicated by LEDs on the fascia of the PLC, and generate a technical or fraud alarm signal (together with a standard audible signal) transmitted to the remote control desk (option).

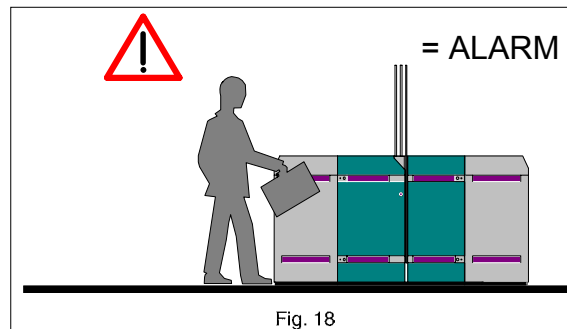


6.3. Passage of a person

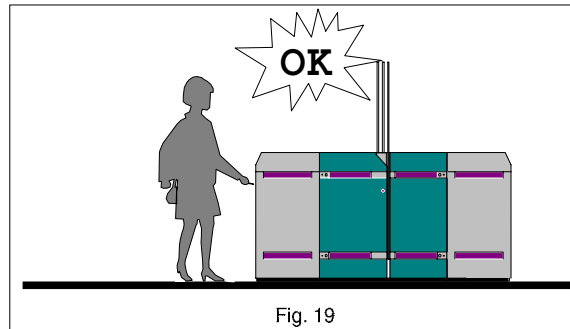
- Typical situation presented in direction A. When the PNG gate is in stand-by mode:
 - ⇒ Obstacles open (PNG/NO) or closed (PNG/NC).
 - ⇒ Message "Insert card" displayed on the function pictogram (option).
 1. Inserting a valid ticket into the reader causes the passage-way to open in a "Normally Closed" configuration (the obstacles fit into the housing), and the green arrow is illuminated on the function pictogram, allowing passage of one person through the gateway within a period of 15 seconds. This period can be modified by means of the FTX117 console. After this time-out, the gate returns to stand-by mode unless the user has already initiated their passage.
 2. Passing cells C1 to C6 (**Fig. 16**) causes the green arrow on the function pictogram to change into a red cross, thus obliging the following person to wait. Simultaneous passage of two persons is detected by these cells. If someone carries bulky luggage, the luggage must be kept close to the body so that the detection beam is not interrupted between the two cells (should the beam be interrupted twice, the gate would interpret this as two persons trying to pass at the same time and set to fraud alarm status).
 3. Thanks to their low location, cells C13 and C14 prevent fraud attempts by crawling on the floor.
 4. The safety photocells group C6, C7, C13 (option), C14 (option), and CS detect a presence before the obstacles and prevent these from closing against a person.
 5. Passing the counting zone (C4, C5, C6 in direction A, C9, C8, C7 in direction B) causes the obstacles to close (in a "Normally Closed" configuration) after a programmable time-out, unless the following person has already inserted a valid ticket into the reader.

Remarks:

- ❑ All photocells are disposed so as to always detect a presence in the PNG walkway.
- ❑ All detection principles exposed here are the ones typically used. They can, however, be adapted to the customer's requirements simply by changing the program of the PLC that controls the PNG. Please refer to *chapter [4. Technical section]*.
- Practical situations:



- ⇒ In the figure above, the user should keep his suitcase closer to himself, otherwise the PNG will consider this passage as a "tailgating" fraud attempt and set to fraud alarm status. The obstacles will close after the suitcase has passed.

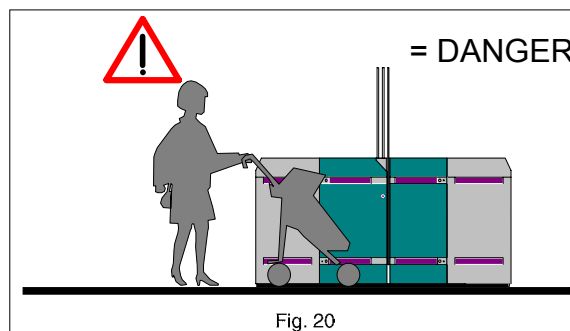


⇒ In Fig. 19, the user inserts her ticket before passing the first cells: the passage is allowed.

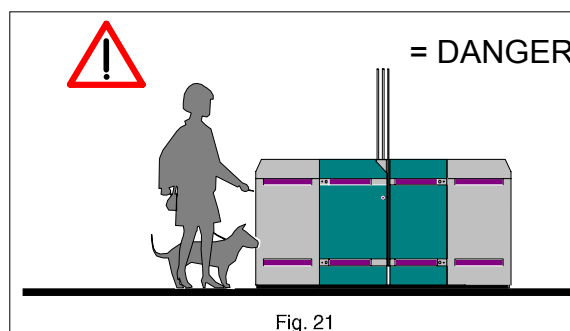
Important warning

As a general rule, detecting a presence (pushchair, luggage,...) in the PNG without previous authorisation automatically sets the PNG to fraud alarm status. The buzzer is activated after 15 seconds. However, since these objects can be between the obstacles without being detected by the cells, the obstacles can close against them. Consequently, it is strongly recommended to prohibit the access to pushchairs, waggons, etc. as well as to animals.

- Examples



⇒ After inserting a valid ticket, the user introduces a pushchair in the walkway. If the pushchair is detected by the cells, the PNG is set to “tailgating” fraud alarm status and just after the passage of the pushchair, the doors close. But if the pushchair is not detected by the cells, the doors could close against it.



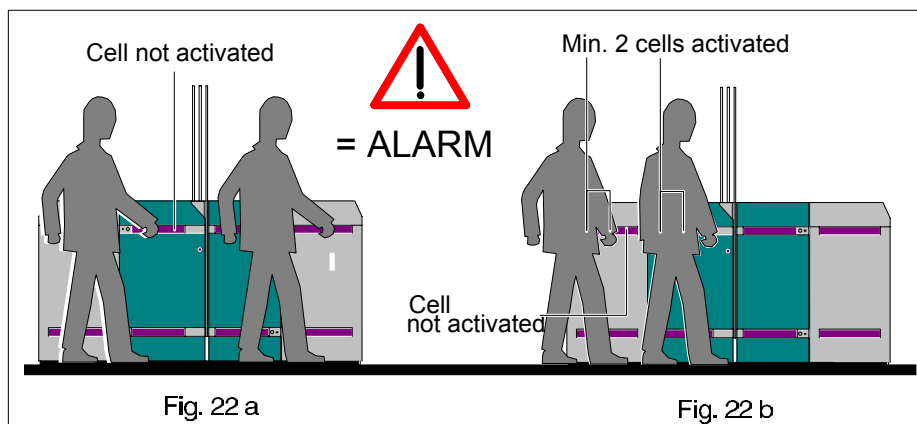
⇒ The user inserts her ticket before passing the first cells: the passage is authorised. If the animal does not pass at the same level as the user and if it is detected by the cells, the “tailgating” fraud is set on and the doors close before or behind the user according to the passage order; on the other hand, if the animal is not detected and if the person passes too late, the doors may close against the animal.

6.4. Passage of two persons with a single ticket

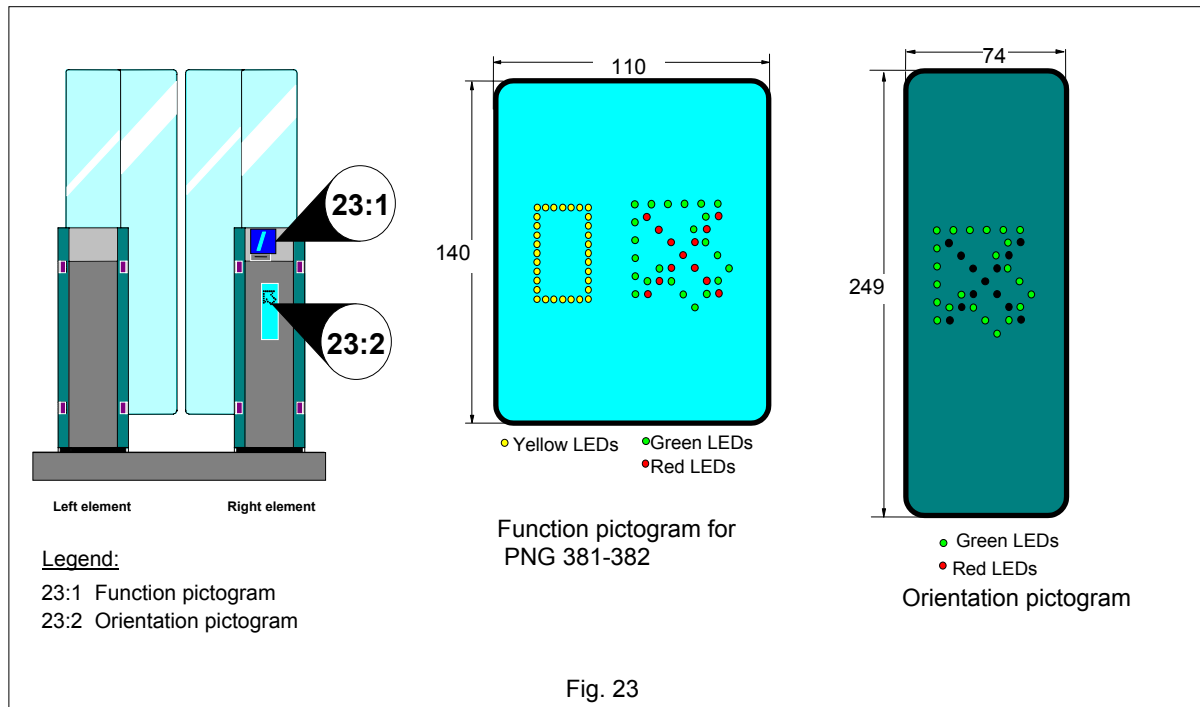
- Typical situation presented in direction A. When the PNG gate is in stand-by mode:
 - ⇒ Obstacles open (PNG/NO) or closed (PNG/NC).
 - ⇒ Message "Insert card" displayed on the function pictogram (option).
 1. Inserting a valid ticket into the reader causes the walkway to open in a "Normally Closed" configuration, and the green arrow is illuminated on the function pictogram, allowing the passage of one person through the gateway within a period of 15 seconds.
 2. Passing cells C1, C2 and C3 causes the green arrow on the function pictogram to change into a red cross. After the authorised person passes the counting zone, the passage of a second person in front of the cells C1 to C6 triggers a sound alarm. In addition to the sound warning and the alarm contact, the walkway closes immediately and so prevents any other passage.
 3. The alarm is shut off after a pre-determined time-out (typically one second) when all cells (C1 to C6) have become inactive.
 4. In the exit direction (direction B), the operation principle is identical.

Additional characteristics:

- ❑ In a "No passage authorisation storage" configuration, card reading is impossible as long as the previous user has not passed the counting zone. In a "Passage authorisation storage" configuration, card reading is always possible, whatever the system cycle.
- ❑ It is possible to lock the gate in the closed position using a remote control facility (optional).
- ❑ In a bidirectional configuration where passage is allowed simultaneously in both directions, the red cross is illuminated on the function pictogram during a passage in the opposite direction.
- Practical situation:
 - ⇒ Two users enter the walkway after validating one single ticket: if the "tailgating" fraud detection before passage of the doors is not activated (**Fig. 22 a**), the first one can go through the obstacle; but the PNG is set to alarm status before the second one clears the obstacles and the doors close if nobody stands before the safety cells (see chapter [6.3. Passage of one person]). On the other hand, if the "tailgating" fraud detection before passage of doors is activated (**Fig. 22 b**), the doors will close before the first person can go through, except if the safety group is activated.



7. INFORMATION TO USERS



7.1. Orientation pictogram (option)

- The orientation or approach pictogram is also an optional feature. It is made of two superimposed LED circuits and informs the user about the gate operation state: "Passage in service" or "No passage".
- This pictogram is used alone (limited management) or with a function pictogram (extended management).

7.2. Function pictogram (option)

- The function pictogram is made of 3 LED circuits that tell the user what to do when entering the gate. The indications are clear and visible: "Insert your card"; "Walk" or "Wait". Optionally, it can be replaced by a liquid crystal display expressing the messages in the language desired; the operation principle is identical.
- This pictogram can be used with an orientation pictogram.

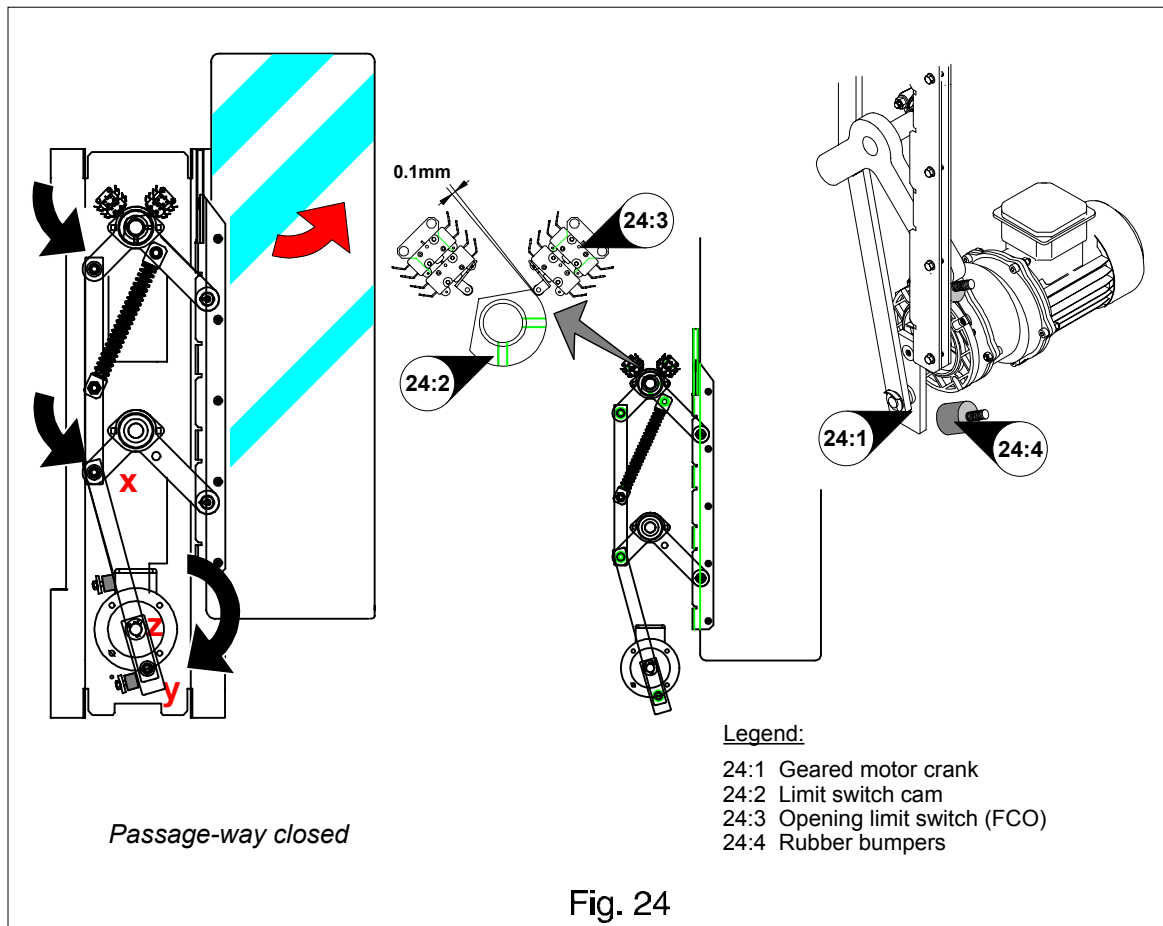
8. MECHANICAL ADJUSTMENTS AND INTERVENTIONS

WARNING!

REMINDER: YOUR AUTOMATIC GATE TYPE "PNG380/381/382" 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 (2:1) OF THE MASTER GATE, WHICH IS LOCATED BEHIND THE LATERAL POLYESTER DOOR (10:1). BE CAREFUL IN HANDLING ANY INTERNAL ELEMENT WHICH MIGHT BE UNDER POWER OR COULD BE SET IN MOTION.

8.1. Limit switch cam adjustment

- The obstacle is closed in the "0 position" if the points (x), (y), and (z) of the crankshaft-rod device are perfectly aligned as illustrated in Fig. 24. If the factory-set alignment of these points is correct, the obstacle in open position (i.e., with passage-way closed) must be locked, with a minimum play, and with motor stopped. To correct the limit switch cam, proceed as follows:

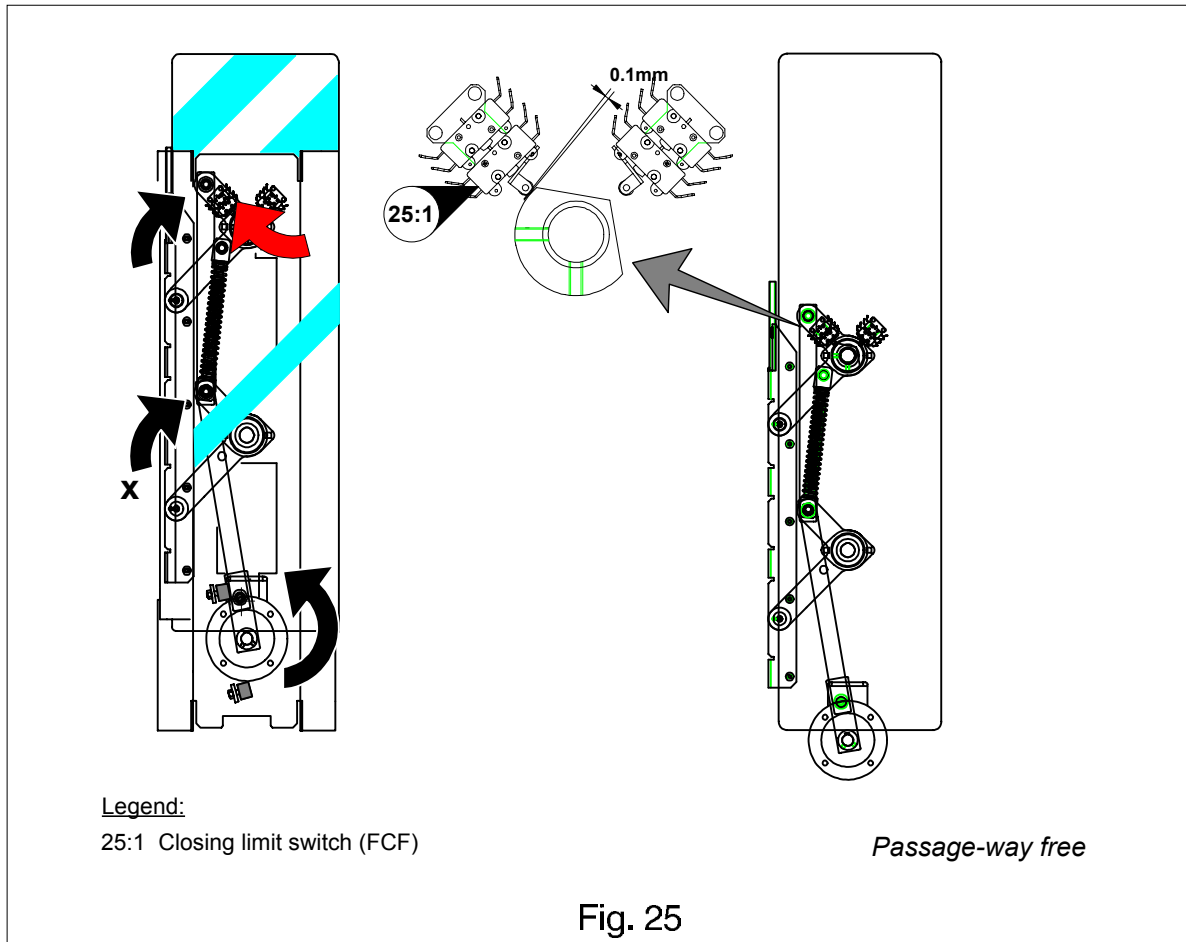


- Ensure that the equipment is powered off (main magneto-thermal circuit breaker disengaged).
- Manually set the geared motor crank (24:1) to a distance of **40 mm** from the closing abutment (lower rubber bumper).
- Loosen the two locking screws of the cam (24:2), and slightly move the cam in either direction until the limit switch is engaged (a click sound can then be heard).

- Tighten the two locking screws of the cam (24:2) again.
- Switch the equipment on again and proceed with an electrical opening test: check the proper operation of the opening limit switch, and if required repeat the above procedure until the desired result is obtained.

Note: When the limit switch is engaged, there must then be a play of 0.1mm between the actuating cam and the limit switch roller when this is compressed at the maximum. It is advisable to take this measurement with the help of a gauge.

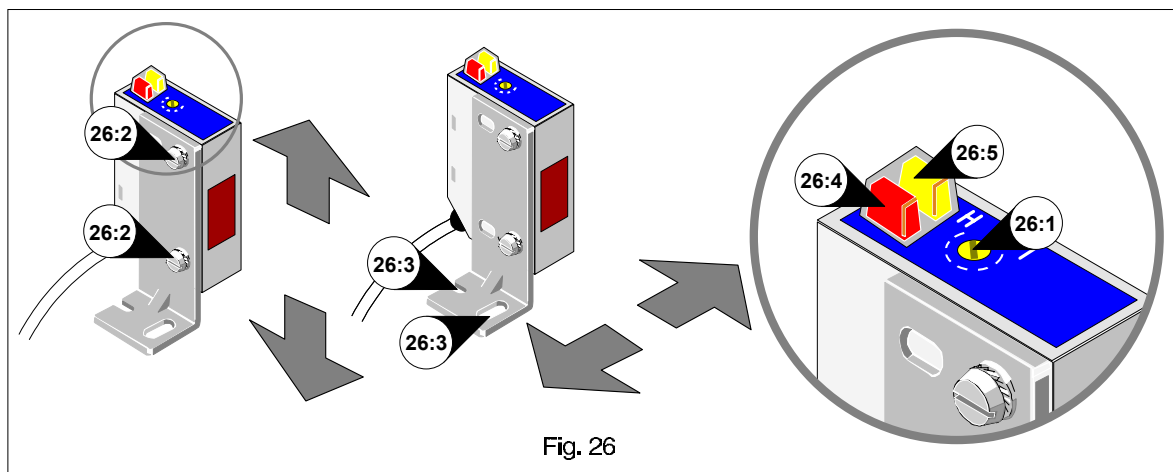
- Proceed likewise with an obstacle closing cycle (passage-way free): the obstacle must be locked, with a minimum play, and with motor stopped.



8.2. Detection photocell adjustment

- The proper operation of the PNG gate requires the correct alignment of the photocells: i.e., the infrared beam must be as best as possible centred on the corresponding reflector. Moreover, their sensitivity must be correctly adjusted, so as to ensure an optimal detection level.
- Proceed as follows to adjust the cells. The equipment must be powered, and the reflectors and the smoked plexiglass strip over of the cells must be clean.
 - Set the sensitivity of the potentiometer (26:1) to the maximum, i.e., on the position "H". You can adjust each cell vertically by loosening the screws (26:2) and horizontally by loosening the screws (26:3), until the red LED (26:4) goes off. At this moment the alignment is correct.
 - Turn the potentiometer (26:1) gradually towards the position "L" until the yellow LED (26:5) goes off.
 - Increase the cell detection sensitivity by turning the potentiometer (26:1) gently towards the position "H" until the yellow LED (26:5) goes on again. Then tune up the detection sensitivity turning the potentiometer (26:1) a little further towards the position "H".
 - When the desired result is obtained, do not forget to tighten the screws (26:2) and/or (26:3) again.

Note: Each photocell comprises a red LED (alarm LED), which goes on in case of incorrect or unreliable operation. Correct and stable operation will be obtained when the necessary adjustment causes the LED to go off. It is quite normal for this LED to momentarily go on as the detector switches. In the event of an overload or short-circuit, the alarm LED will blink.



- Precautions in use:
 - The lens of the cell must be kept clean. All optical systems being influenced by the environment in which they are situated, the presence of haze, mist, smoke, fumes, dust, etc. may affect their operation by reducing the sensing distance.
 - When cleaning the lens, never use base products, aromatics, hydrocarbons, or solving agents.

Reminder: Even though the yellow LED of all cells is on, it is advisable to check their connection to the PLC, and make sure the corresponding LEDs are also on and go off whenever the cells are occulted.

8.3. Mounting and dismantling a mobile obstacle

WARNING !

BEFORE ANY INTERVENTION IN AN INTERMEDIATE PNG38X GATE, ALWAYS ENSURE THAT THE ADJACENT GATE IS POWERED OFF AND THE MOBILE OBSTACLE IS IN THE "OPEN" POSITION TO PREVENT BODILY INJURY DUE TO THE MECHANISM.

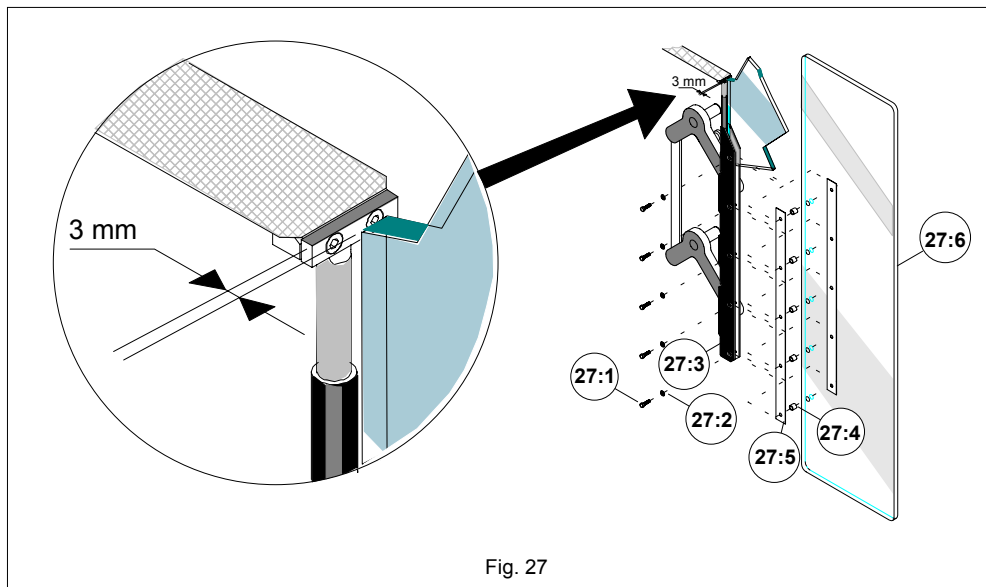
8.3.1. Dismantling

- Open the main door.
- Bring the obstacle to the "closed" position, i.e., barring the passage-way.
- Loosen and remove the 5 screws (27:1) that fix the obstacle to the plinth.

⚠ Firmly maintain the obstacle during the procedure.

⚠ Once the obstacle is dismantled, the mechanism may be violently forced open due to the balancing spring. To prevent this, maintain the motor rod against the closing bumper by means of an adequate tool.

- Take the obstacle down.



8.3.2. Mounting

- Fix self-adhesive masking tape (27:5) to the glass obstacle (27:6) on the area where the obstacle is to be accommodated into the plinth (27:3).
- Fix the flexible spacers (27:4) to the obstacle holes.
- Insert the obstacle into the plinth.
- Mount the 5 hexagonal-head screws M5x25 (27:1) and the 5 lock washers M5 DIN6798 (27:2).
- Maintaining the obstacle 3 mm from the safety shutter, check the position of the obstacle with the help of a bubble level and progressively tighten the 5 screws (27:1) with a tightening torque of 10 to 11 Nm maximum.

9. MAINTENANCE

- The following operations are to be carried out every two to three months, depending on how heavily the gate is used.
 - ☞ Unlock and open the lateral, hinged polyester doors (10:1) to (10:4).
 - ☞ In the case of a PNG381 or PNG382, also unlock and open the hood(s) (10:5) and (10:6).
 - ☞ In the case of a PNG381 or PNG382, also unlock and remove the lateral extension door(s) (10:7) and (10:8).
 - ☞ Proceed with the various electrical tests: opening and closing of the obstacles, proper operation of the detection photocells, function and/or orientation pictograms (options), readers (client's supply), etc.
 - ☞ Remove all the dust and clean the interior of the housing, and remove any foreign body from the inside of the gate (scraps, etc.). Check if the reflectors and the smoked plexiglass strip over of the cells are clean. 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 the yellow LED of all cells is on in stand-by mode, and make sure the corresponding LEDs are also on on the PLC fascia and go off whenever the cells are occulted. If needed, adjust the cells referring to *paragraph [8.2. Detection photocell adjustment]*.
 - ☞ For each mechanical group, check if the obstacle is properly locked after an opening movement (passage-way closed), with motor stopped, and if it is fully integrated into the housing after a closing movement (passage-way free), also with motor stopped. If not, refer to *paragraph [8.1. Limit switch cam adjustment]*.
 - ☞ If required, grease the safety shutter stretcher with multilub Molycote-type grease.
 - ☞ Check the proper and harmonious operation of the safety shutter on the upper part of the housing, and grease if required.
 - ☞ Check (if this option is programmed in the variable speed controller) if the obstacle opens properly in case the equipment is powered off, i.e., proper operation of the anti-panic device.
 - ☞ Check if all screws and nuts have been tightened firmly.
 - ☞ Check if you did not forget any tool remaining inside the gate.
 - ☞ In the case of a PNG381 or PNG382, replace and lock the lateral extension door(s) (10:7) and (10:8).
 - ☞ In the case of a PNG381 or PNG382, close and lock the hood(s) (10:5) and (10:6).
 - ☞ Close and lock the lateral, hinged polyester doors (10:1) to (10:4).

Note: <i>The geared motor and the pillow blocks are life-lubricated and do not require any maintenance. Just check on a regular basis if they do not leak.</i>
