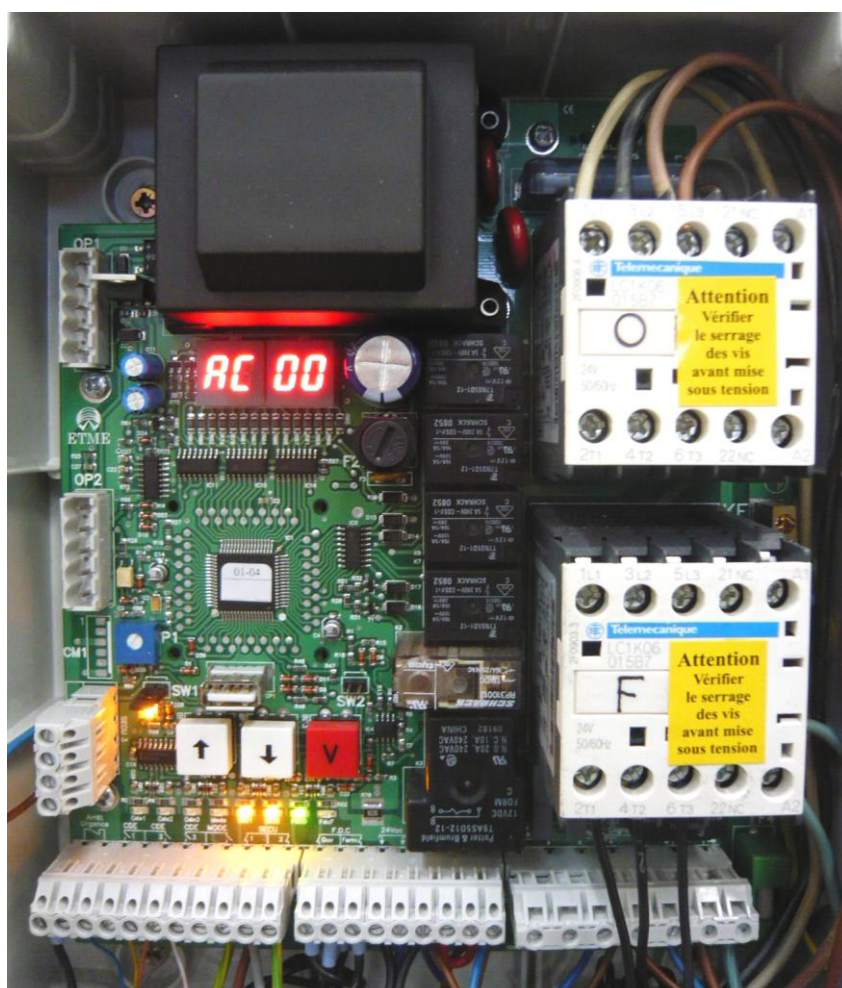


INSTALLATION and CONNECTION

Indus SACL operator (230/400V) with PIC 4410 box



Industry Sectional doors



(Document reserved for installers)

Contents

Installation instructions	3
Before installation	4
Required equipment.....	4
Assembling the operator	5
4410 board layout	6
Board power supply.....	7
Button functions.....	7
Default settings table	8
(standard factory settings)	8
Connecting the operator to the PIC 4410 box	9
Configuring the PIC 4410 box.....	9
before end of travel adjustment	9
End Of Travel (EOT) adjustment.....	10
Choosing the operating mode.....	11
(out light curtain).....	11
Mixed operation	11
(Pulse opening - Sustained lowering)	11
Pulse operation.....	11
(Pulse opening/lowering)	11
Automatic operation	12
(Pulse opening and automatic reclosing)	12
Safety connections with self-test	13
Low cells.....	13
If high cells	13
Resistive safety edge	13
OPTIONS : flashing orange lights / illumination lights.....	14
Starting self-learning	14
Self-learning procedure (with EOT : End Of Travel).....	14
C : Type of self-learning (with EOT : End Of Travel).....	15
Programming menu layout.....	16
OPTION : light curtain.....	17
Product presentation.....	17
General instructions	17
Installation	17
Alignment	18
Connection diagram	18
Configuration of the PIC 4410 box.....	19
Description of the state of LEDS (light curtain)	19
Commissioning.....	19
Malfunctions of light curtains.....	20
Maintenance.....	20
Most common errors and information	21
In the case of a chain hoist	21
Troubleshooting help	23
Emergency operation	23
Customer service contact.....	23
Chain hoist	24

Installation instructions



CAUTION !



To reduce risks, carefully read the following instructions before proceeding with the installation.

Pay close attention to all signs shown in the text.

**Failure to follow to the letter all the instructions in this manual,
may interfere with the proper operation of the system, place the user in danger
and in all cases invalidate the product warranty.**

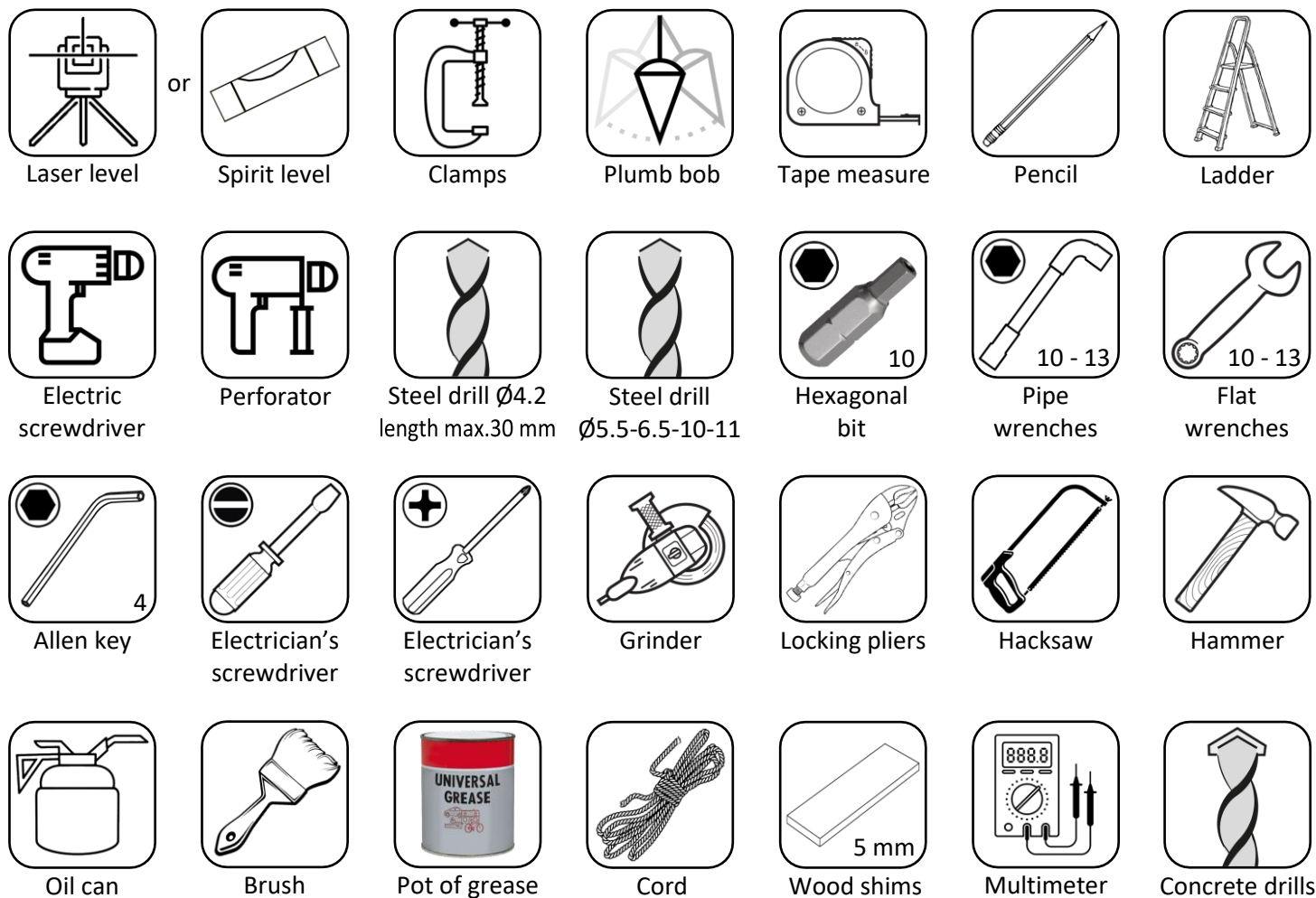
- The device described in this booklet must be used only for the purpose for which it was expressly designed, i.e. Control system for automatic door (as defined in standard BS EN 13241 : 2003 + A2 : 2016).
- The entire installation must be carried out in accordance with good professional practice and in particular comply with the following directives :
 - Electromagnetic Directive 89/336/CEE
 - Low voltage Directive 73/23/CEE
 - Machinery Directive 98/37/CEEand the applicable sections of the corresponding standards in force, including NFC15-100, mainly with respect to connection, insulation conditions and protection of people and equipment.
- All connection operations (wiring, installation of options, etc.) must be carried out by authorized personnel with the power switched off.
- The entire installation must be maintained and kept in good working order.
- The materials used must be adapted to the atmospheric conditions of the site of installation.
- If you have any doubts about the safety and/or reliability of the installation, stop installing the product and contact us.
- Switch the device off before proceeding with any cleaning or maintenance operations.
- In the event of a fault or malfunction, switch the device off immediately and contact technical support. Any repairs must be carried out by specialized personnel, using only original, certified spare parts.
- The manufacturer has no experience of incorrect use of the products or use of the products for purposes other than those intended and/or recommended. Therefore, work carried out is the sole responsibility of the installer.

We accept no liability for :

 - Electrical installation that does not comply with current standards, particularly in the case of ineffective circuit protection (earthing).
 - Inappropriate adjustment by the customer, which may place the user in danger or destroy the equipment.
- The installer must ensure the installation functions correctly before use, in particular all the safety functions.
- Keep this manual for future reference.

Before installation

Required equipment

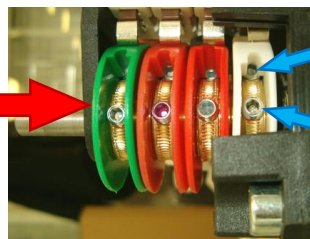


Dowels with Ø6 maxi screws

Assembling the operator



Before installing the operator on the shaft, check the positions of the adjustment screws and cam locking screws to ensure they can be accessed with the wrench for adjustment.



End adjustment screw

Locking screw

IMPORTANT !

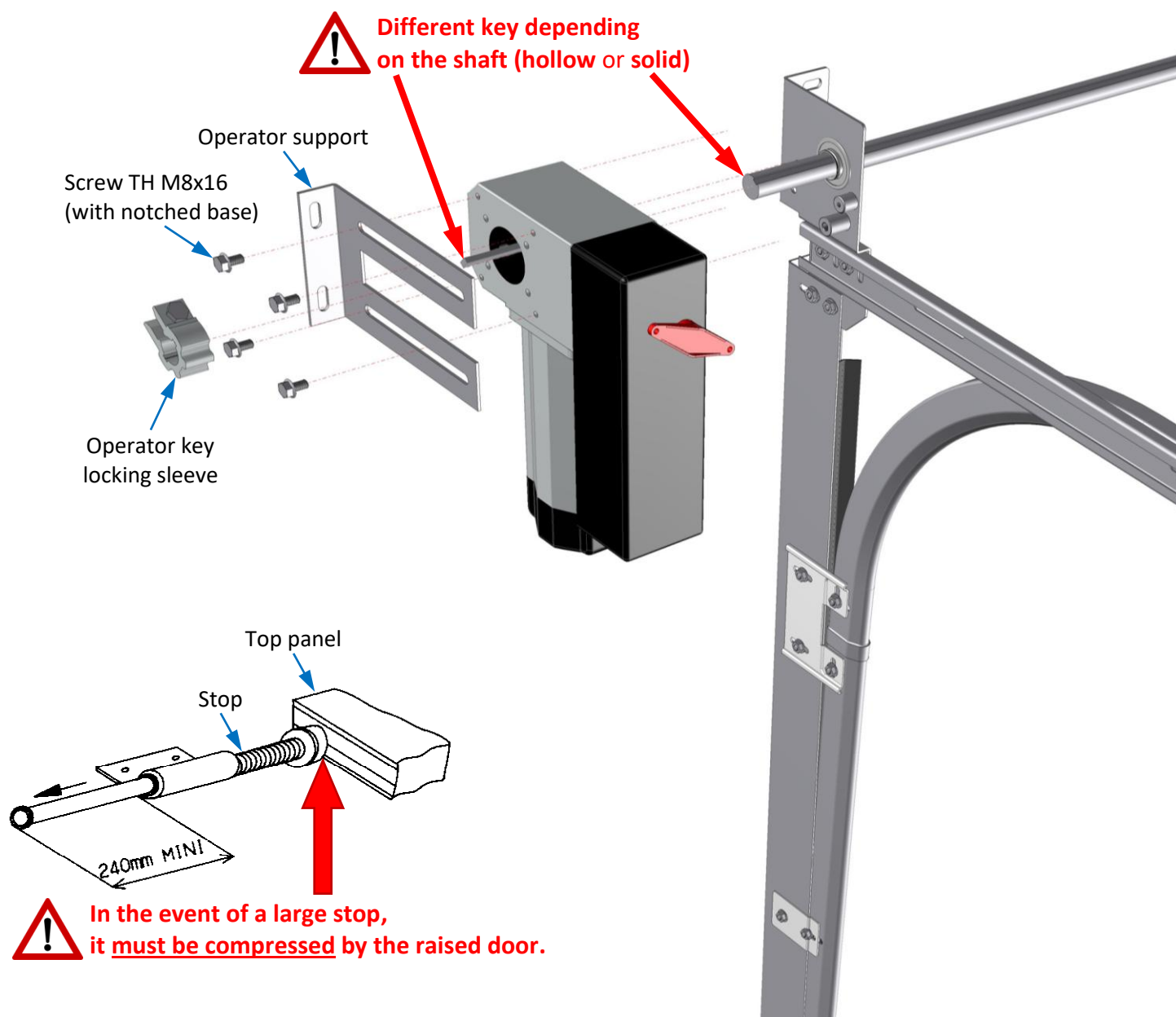
If hollow shaft : 9.5 x 6.3 mm key, length 75 mm (KIT no. 243 in the accessory pack).



If solid shaft : 6.3 x 6.3 mm key with grub screw, length 105 mm (Bag in the operator pack).



Different key depending on the shaft (hollow or solid)



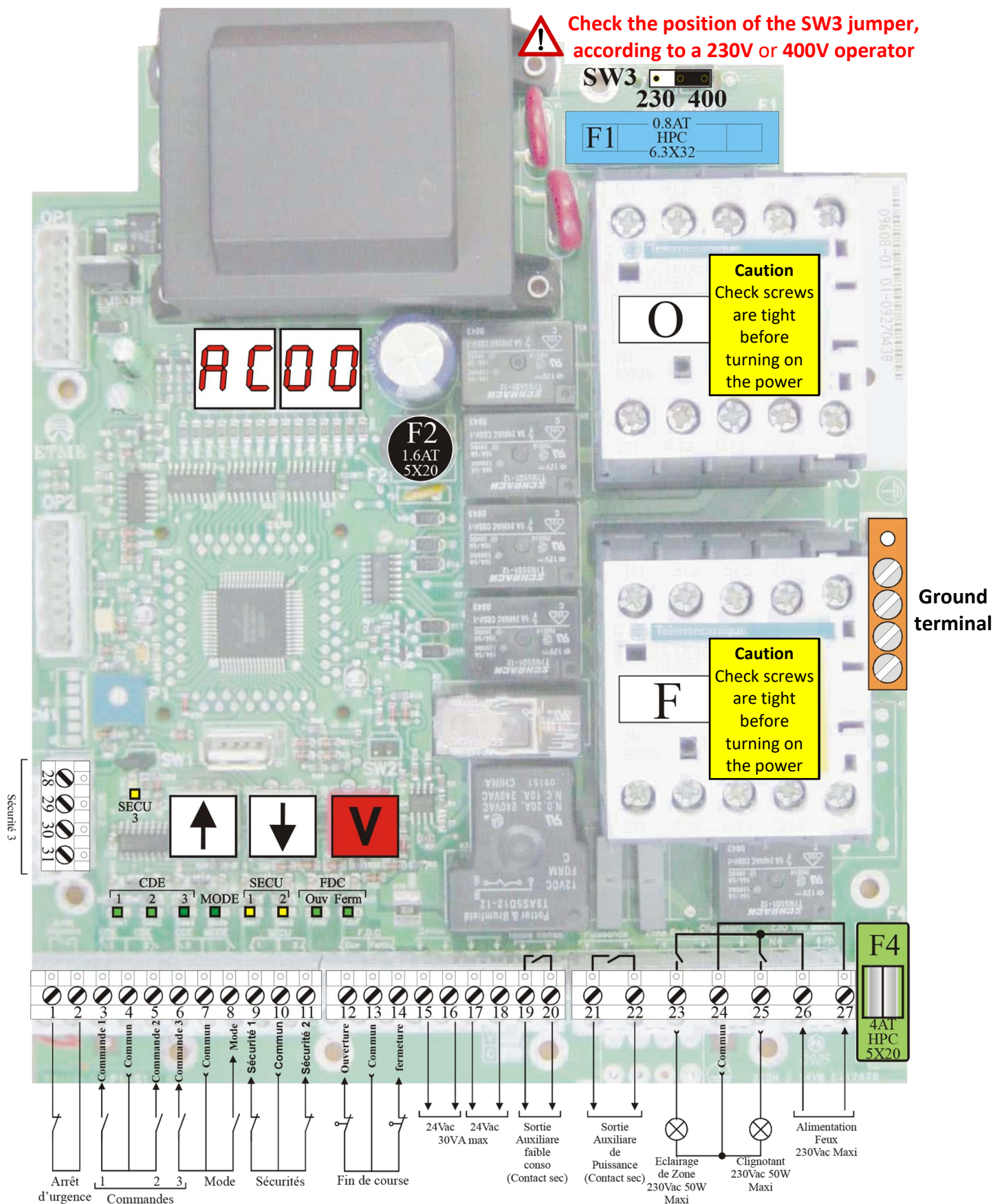
In the event of a large stop, it must be compressed by the raised door.

4410 board layout

⚠ Protect the supply line with a suitable differential circuit breaker positioned upstream and thermal protection.

⚠ Always check the voltage of your control, which is indicated on the motor.
The SW3 jumper does not allow changing the motor's supply voltage.

⚠ Check the position of the SW3 jumper, according to a 230V or 400V operator

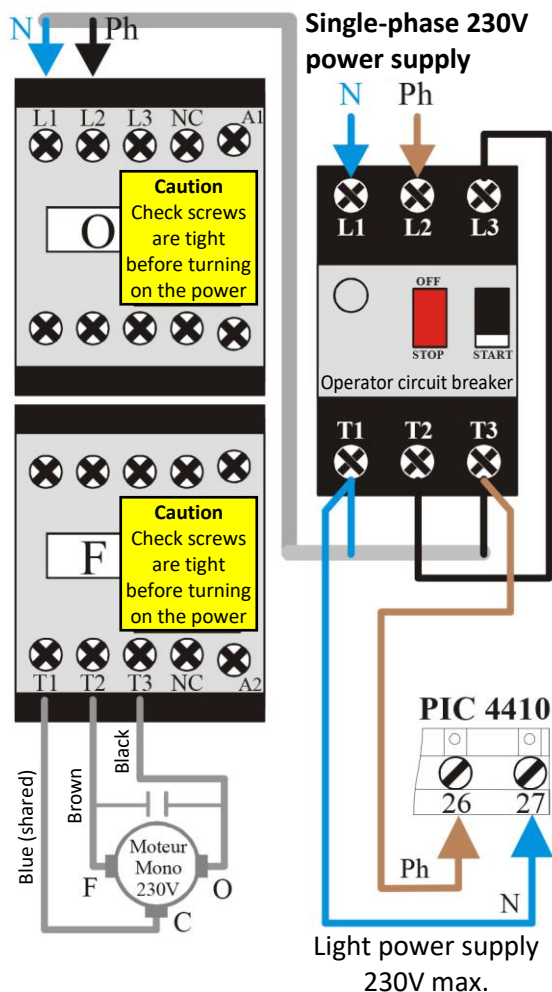


Board power supply

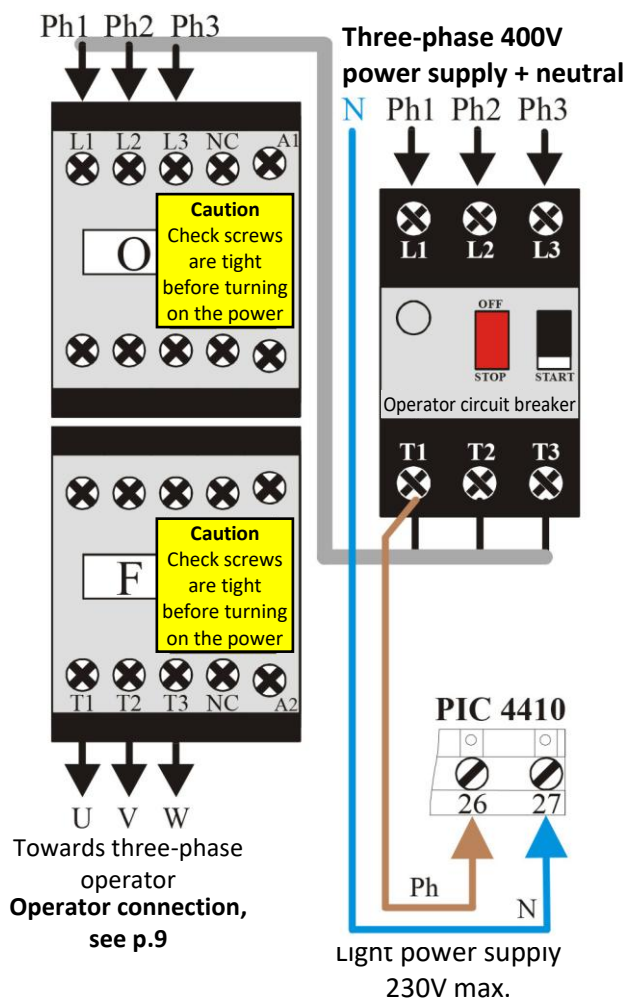


Circuit breaker not supplied



Single-phase 230V operator




Three-phase 400V operator



Button functions

Use the  and  push buttons to navigate within the menu and change the value of a setting.

Use the  push button to enter a menu and confirm the value of a setting.

Note : During an operating cycle : display 1, show the phases of operation.
display 2, indicates a possible default.

Default settings table

(standard factory settings)

		Factory values	
F0	CHOICE OF SCENARIO	00	
AP	SELF-LEARNING MENU		

d0	GENERIC SETTINGS MENU		
d1	Operating mode 1	04	Dead man
d2	Advance warning	ON	With advance warning
d3	ADMAP	ON	With ADMAP
d5	Clock function	OF	Without clock
d6	Activation of locking errors	OF	No
d7	Self-test position		
d8	Braking mode	00	Type 1 brake
d9	Operating mode 2	04	Dead man

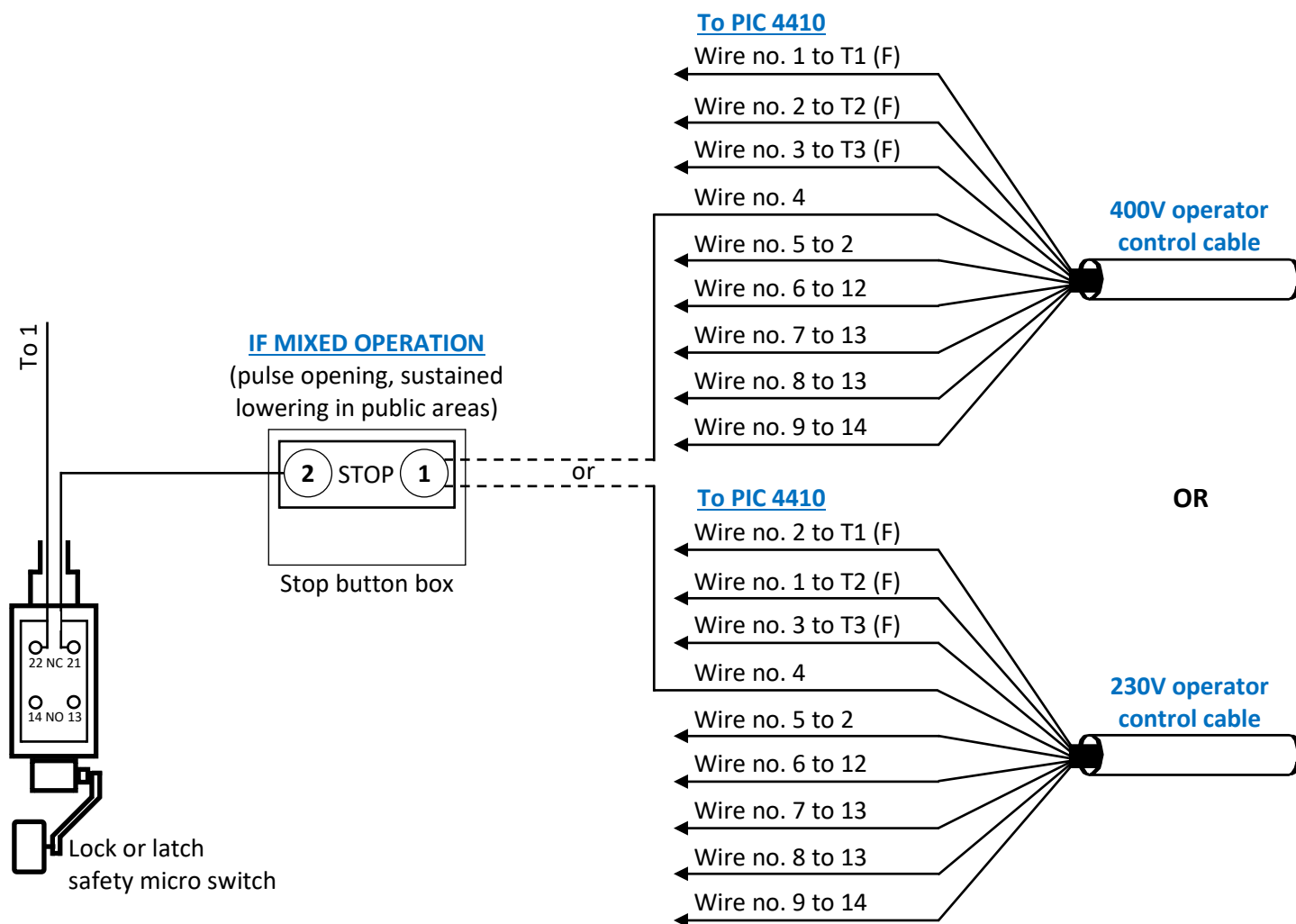
E0	INPUT MENU		
E1	Safety input 1 (terminals 9 and 10)	00	Internal low cells deactivated
E2	Safety input 2 (terminals 10 and 11)	00	External low cells deactivated
E3	Safety input 3 (terminals 28 to 31)	04	Safety edge with self-test
E5	Factoring in of operator EOT	00	No end of travel
E6	Auxiliary input 1 (with PIC 40 board)	00	Deactivated
E7	Auxiliary input 2 (with PIC 40 board)	00	Deactivated

J0	OUTPUT MENU		
J1	Power auxiliary output (21 and 22)	00	Strike plate
J2	Low consumption auxiliary output 1 (19 and 20) NO	03	Self-test output
J3	Low consumption auxiliary output 2 (1 and 3) NO	01	Timer
J4	Low consumption auxiliary output 3 (4 and 5) NO	02	Door status
J5	Low consumption auxiliary output 4 (6 and 7) SW1/PIC 40	03	Self-test output
J6	Area lighting pending closure		
J9	Flashing speed	00	Normal speed

T0	TIME DELAY MENU		
t1	Operator running time	20	0 to 4 minutes
tA	Closure waiting time		
tP	Partial opening time	5	1 to t1
tL	Safety reinversion time	0	

T1 and **tA** : Parameters set during self-learning.

Connecting the operator to the PIC 4410 box



Configuring the PIC 4410 box before end of travel adjustment

1. Settings :

E3	Safety input 3 (terminals 28 to 31)	00	Deactivated
E5	With end of travel	01	Activated

2. Connect a push button :

Opening = Terminals 4 and 5.

Lowering = Terminals 6 and 7.

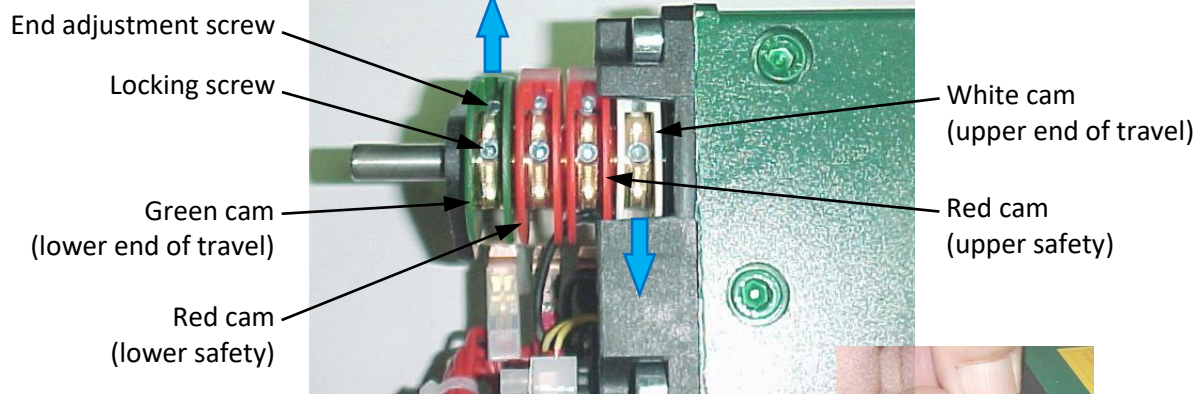


Check the direction of rotation : for a three-phase 400V operator.

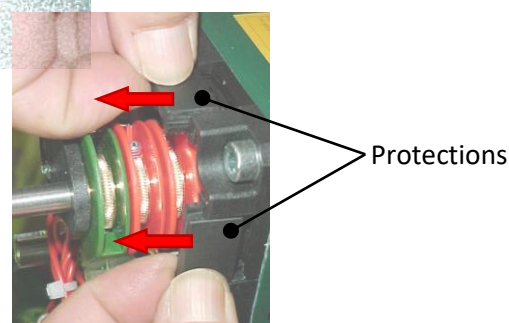
The push button connected to terminals 4 and 5 must engage opening.

If not, switch the power supply off and swap Ph1 and Ph2 on the PIC 4410 box.

End Of Travel (EOT) adjustment

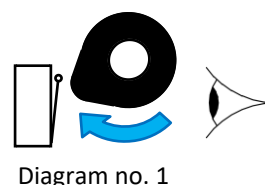


Procedure : Remove both protections and loosen the cam locking screws.



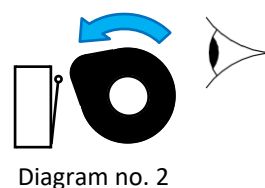
Upper End Of Travel (EOT) :

1. Move the door to the desired upper position.
2. Push the **upper End Of Travel (EOT) white cam** until the contactor clicks (the cam must reach the contactor "from below"). **See diagram no. 1, opposite.**
Note : you should hear a click and the "EOT O" opening end of travel LED on the PIC 4410 box should go out).
3. Tighten the locking screw slightly.
4. Push the **upper safety red cam** in the same way until it clicks, then move it backwards until you hear it click again (free contact).
5. Tighten the locking screw slightly.



Lower End Of Travel (EOT) :

1. Move the door to the desired lower position.
2. Push the **lower End Of Travel (EOT) green cam** until the contactor clicks (the cam must reach the contactor "from above"). **See diagram no. 2, opposite.**
Note : you should hear a click and the "EOT F" closure end of travel LED on the PIC 4410 box should go out).
3. Tighten the locking screw slightly.
4. Push the **lower safety red cam** in the same way until it clicks, then move it backwards until you hear it click again (free contact).
5. Tighten the locking screw slightly.



Final adjustment :

1. Operate the door and fine-tune the settings if necessary, by tightening or loosening the end adjustment screw.
2. **Securely tighten the locking screws.**

Choosing the operating mode (out light curtain)

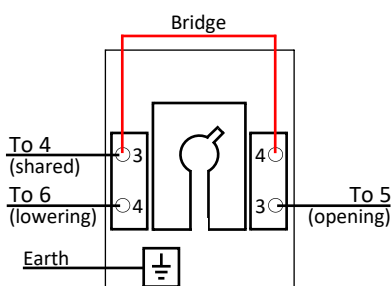
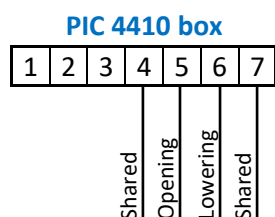
! You should install fixed controllers within view of the door, but away from any moving parts and at a height of at least 1.5 m from the floor.

! Each switch must control only one operator. It is strictly prohibited to control several operators with just one single-pole type reverser.

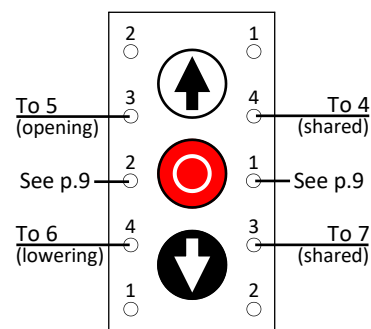
Mixed operation

(Pulse opening - Sustained lowering)

1. Control connections on the PIC 4410 box :



Wall-mounted/built-in
key switch box (BCA/BCE)
with stop button box (see p.9)



Wall-mounted box
with 3 buttons (BBA3)

2. Mixed operation settings :

d1	Operating mode 1	06	Mixed operation
-----------	------------------	----	-----------------

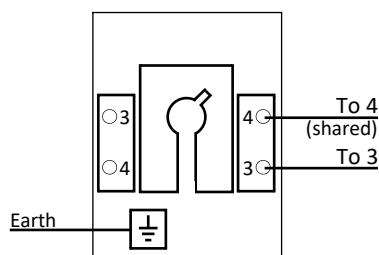
3. Self-learning :

- Start the self-learning procedure (see chapter : Starting self-learning).

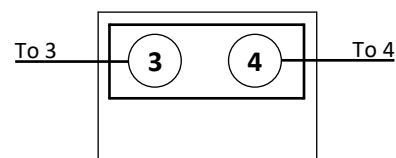
Pulse operation

(Pulse opening/lowering)

1. Control connections on the PIC 4410 box :



Wall-mounted/built-in
key switch box (BCA/BCE)



Wall-mounted box
with button (BBA)

Note : if using a remote control, refer to the receiver box manual.

2. Pulse operation settings :

d1	Operating mode 1	03	Pulse operation - Step by step
-----------	------------------	----	--------------------------------

E1	Safety input 1 (terminals 9 and 10)	04	Internal low cells with self-test *
-----------	-------------------------------------	----	-------------------------------------

E2	Safety input 2 (terminals 10 and 11)	04	External low cells with self-test *
E3	Safety input 3 (terminals 28 and 31)	04	Safety edge with self-test
tL	Safety reinversion time	0.5	

***Note :** if the installation requires no cells, leave **E1 = 00** and **E2 = 00**.

3. Self-learning :

- Start the self-learning procedure (see chapter : Starting self-learning).

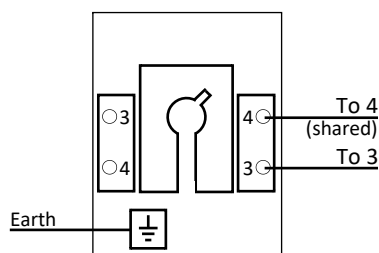
Automatic operation

(Pulse opening and automatic reclosing)

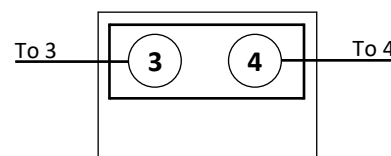
1. Control connections on the PIC 4410 box :

PIC 4410 box

1	2	3	4	5	6	7
---	---	---	---	---	---	---



Wall-mounted/built-in
key switch box (BCA/BCE)



Wall-mounted box
with button (BBA)

Note : if using a remote control, refer to the receiver box manual.

2. Automatic operation settings :

d1	Operating mode 1	00	Automatic operation
-----------	------------------	----	---------------------

E1	Safety input 1 (terminals 9 and 10)	04	Internal low cells with self-test **
E2	Safety input 2 (terminals 10 and 11)	04	External low cells with self-test **
E3	Safety input 3 (terminals 28 and 31)	04	Safety edge with self-test **
tL	Safety reinversion time	0.5	

Timed reclosure is equivalent to the automatic operating mode
(not activated manually by the user) (refer to BS EN 13241 : 2003 + A2 : 2016)



**** Ensure that the mandatory protection levels
for the automatic operating mode are met**



3. Self-learning :

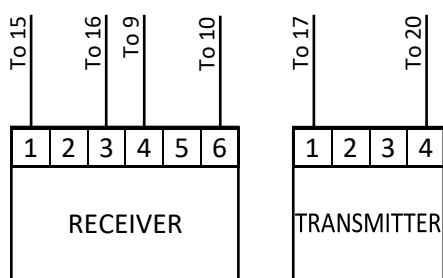
- Start the self-learning procedure (see chapter : Starting self-learning).

Safety connections with self-test

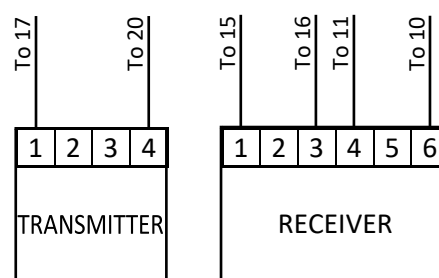


There must be a bridge between 18 and 19

Low cells

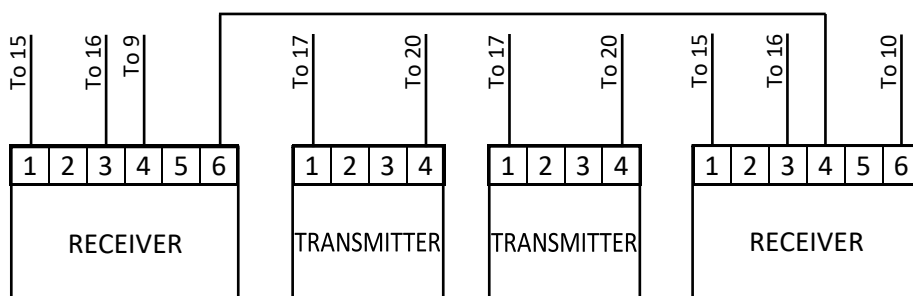


Internal cells



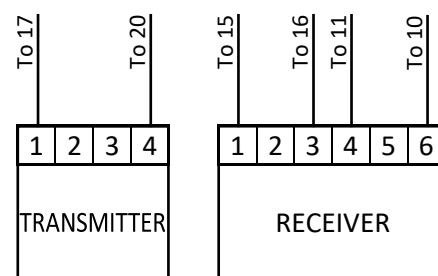
External cells

If high cells



Internal cells

External cells



High cells

High cells settings :

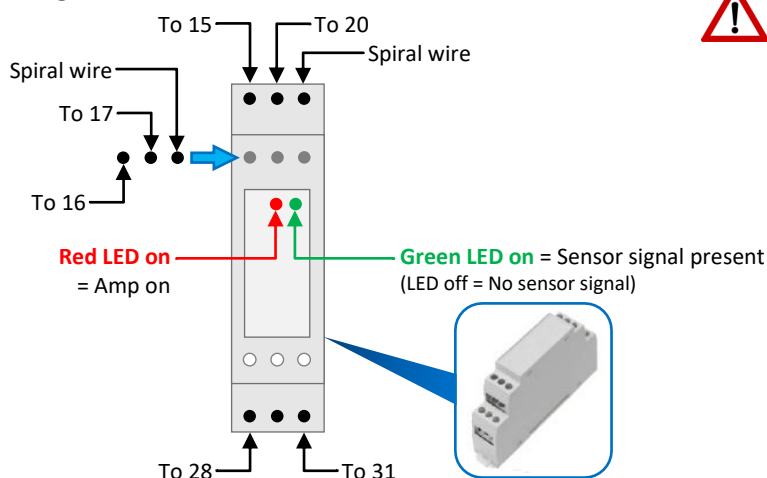
E2	Safety input 2 (terminals 10 and 11)	02	High cells with self-test
----	--------------------------------------	----	---------------------------

Resistive safety edge

1. Wiring to the PIC 4410 box :



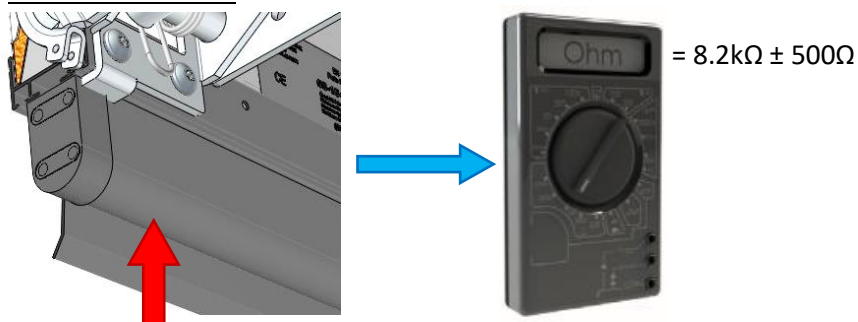
There must be a bridge between 18 and 19



2. Safety edge settings :

E3	Safety input 3 (terminals 28 and 31)	04	Safety edge with self-test
J2	Low consumption auxiliary output 1 (19 and 20) NO	03	Self-test output

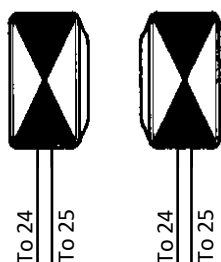
3. Measure the value :



OPTIONS : flashing orange lights / illumination lights

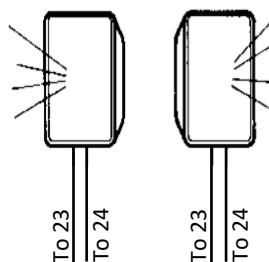
Flashing orange lights

220V - Max. 2x15W



Illumination lights

220V - Max. 2x100W





Starting self-learning

Before starting self-learning, the installation must be complete :
 door in lowered position, operator and control connected, safety devices wired and End Of Travel (EOT) set.

Description	Action	Display after action
Card waiting for order, without default and operator off		<div>Fixed</div> <div>AC 00</div> <div>Waiting order No default</div>
Enter the programming menu	<div>↑ ↓ V</div>	<div>Fixed</div> <div>FO 00</div> <div>Scenario configured</div>
Reach the self-learning (AP) menu	<div>↑ ↓ V</div>	<div>Fixed</div> <div>AP En</div> <div>Menu</div>
Enter the self-learning menu	<div>↑ ↓ V</div>	<div>Fixed</div> <div>AP C</div> <div>Menu Type</div>
Check that the self-learning type displayed is C : with final End Of Travel (EOT) and that it corresponds well to your installation	<div>↑ ↓ V</div>	<div>Fixed</div> <div>At Cd</div>

Self-learning procedure (with EOT : End Of Travel)

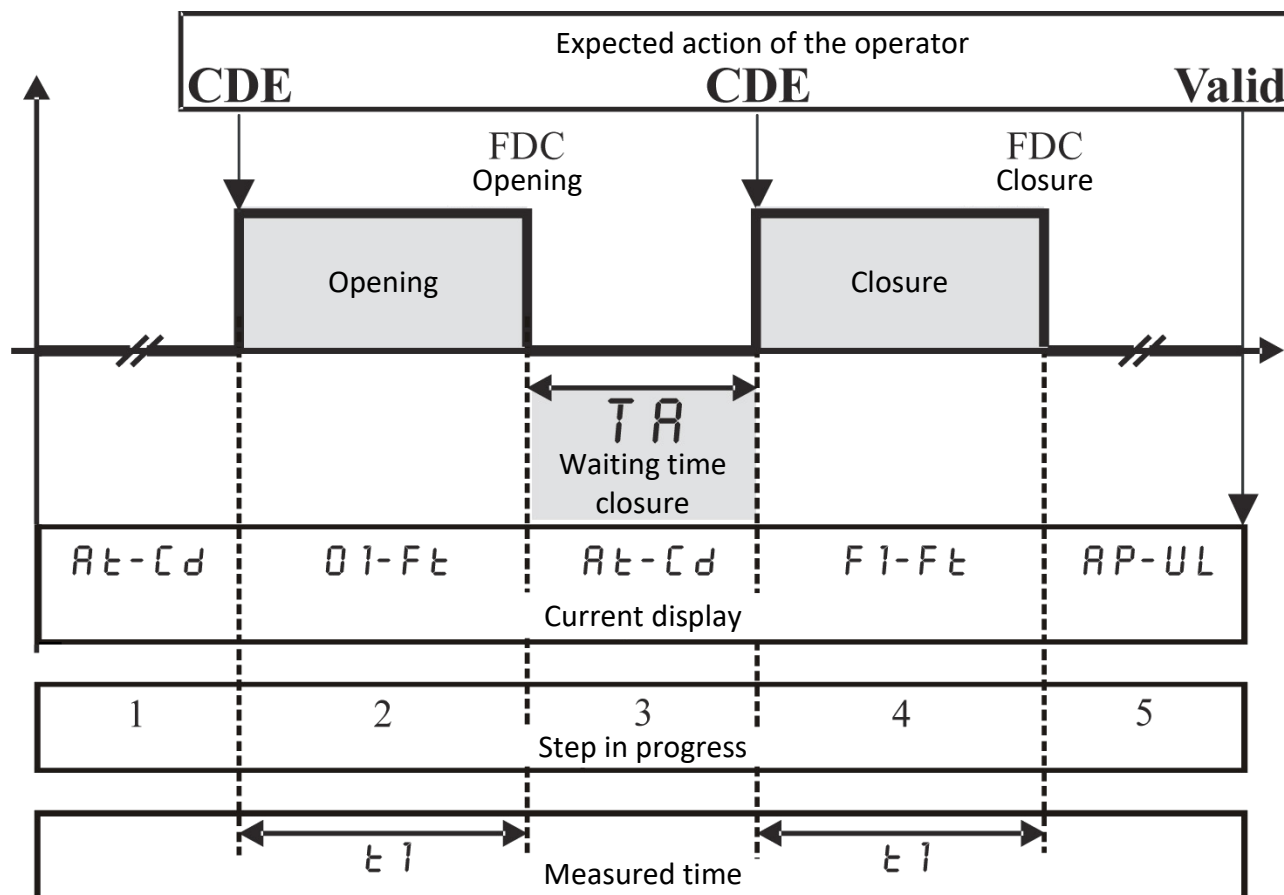
In the course of the various stages, the operator will need to send a "CDE" command to the board at very precise times. This "CDE" action will involve either :

- Creating a contact on the CDE1 input (terminals 3 and 4).
- Pressing the  or  push button.

The TA closure waiting time will be measured and factored in, only if the automatic mode has been programmed.

C : Type of self-learning (with EOT : End Of Travel)

Normal cycle : The opening and closure phases end when the corresponding Ends Of Travel (EOTs) are actuated.



If self-learning fails, the display will show **EPUL**, in this case start self-learning again from the beginning.

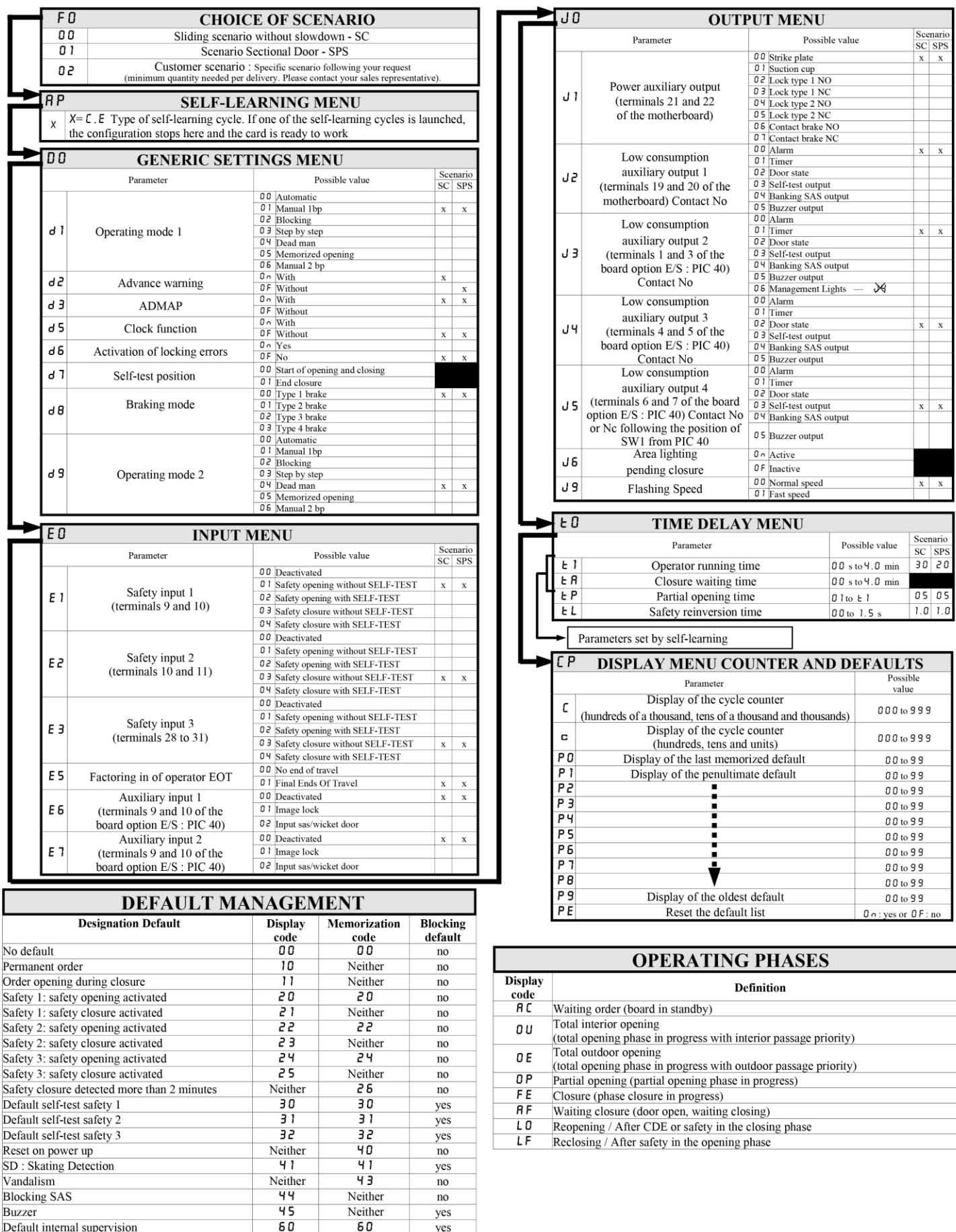
Successful self-learning will end with :

APUL, press **V** to record the values.

! Launch an operating cycle (one opening and one closure) and check that the safety devices are working properly.

Note : to change other parameters, see chapter : Programming menu layout, next page.

Programming menu layout



OPTION : light curtain

Product presentation

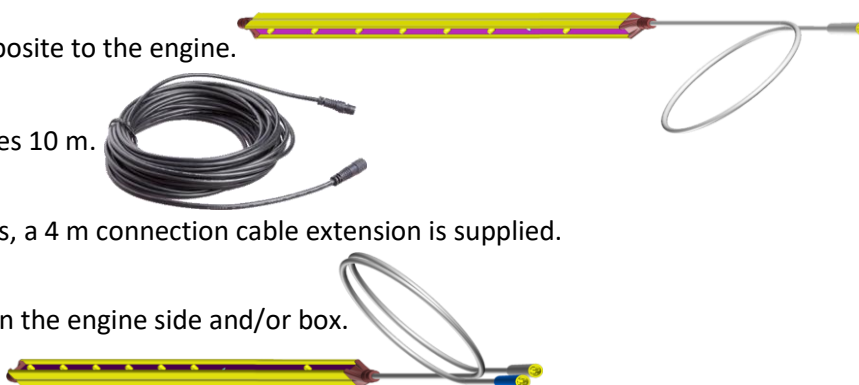
Light curtains (BI) are already installed on the vertical rails.

The emitting barrier (1 wire) is opposite to the engine.




The synchronization cable measures 10 m.

In the configurations of large doors, a 4 m connection cable extension is supplied.

The receptive barrier (2 wires) is on the engine side and/or box.



General instructions

- Do not scratch or paint the optical lenses, to not obstruct the beams !
Do not drill additional holes in the optical edges. 
- Do not bend or twist the optical edges ! 
- Oil and silicone can damage cables and profiles.
Avoid soiling ! 
- Chemicals can damage the profile and alter the optical properties.
Any contact must imperatively be avoided !
- Although the light curtain be insensitive to direct sunlight, avoid as much as possible its exposure, especially in the direction of the receiver.
- Avoid interference due to flashing lights or other infrared light sources, such as photoelectric cells or other light curtains.
- Do not install the light curtain in such a way that the optical edges are exposed directly to sources luminous, like FL tubes or energy-saving lamps.
- Ensure the correct placement of the connectors, on the optical edges.
- Although the light curtain does not emit dangerous amounts of infrared light, long exposure to intense infrared light sources can damage the eyes :



Never directly look at an active infrared emitter closely.

Installation

Before connecting the light curtains, control their good positions.

Note : The barrier with a 2-wire exit, must be on the side of the electrical box.



Warning of the risks of electrical and mechanical shocks :

- Electrical shocks and untimely door movements can cause serious injuries, even fatal.
- Follow the applicable security measures.
- Use only appropriate tools.
- If the light curtain needs to be adjusted, the general power supply must be unplugged and indicated out of service.
- Do not drill additional holes in the optical edges.

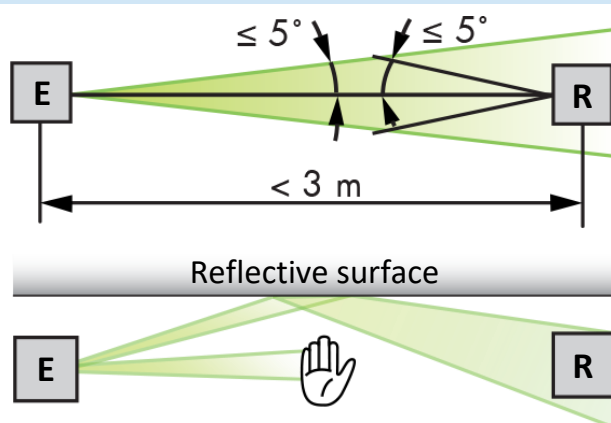
Alignment

The optical axis of the transmitting edge (E) and receiving edge (R) must be aligned, in order to ensure the light curtain its good functioning.

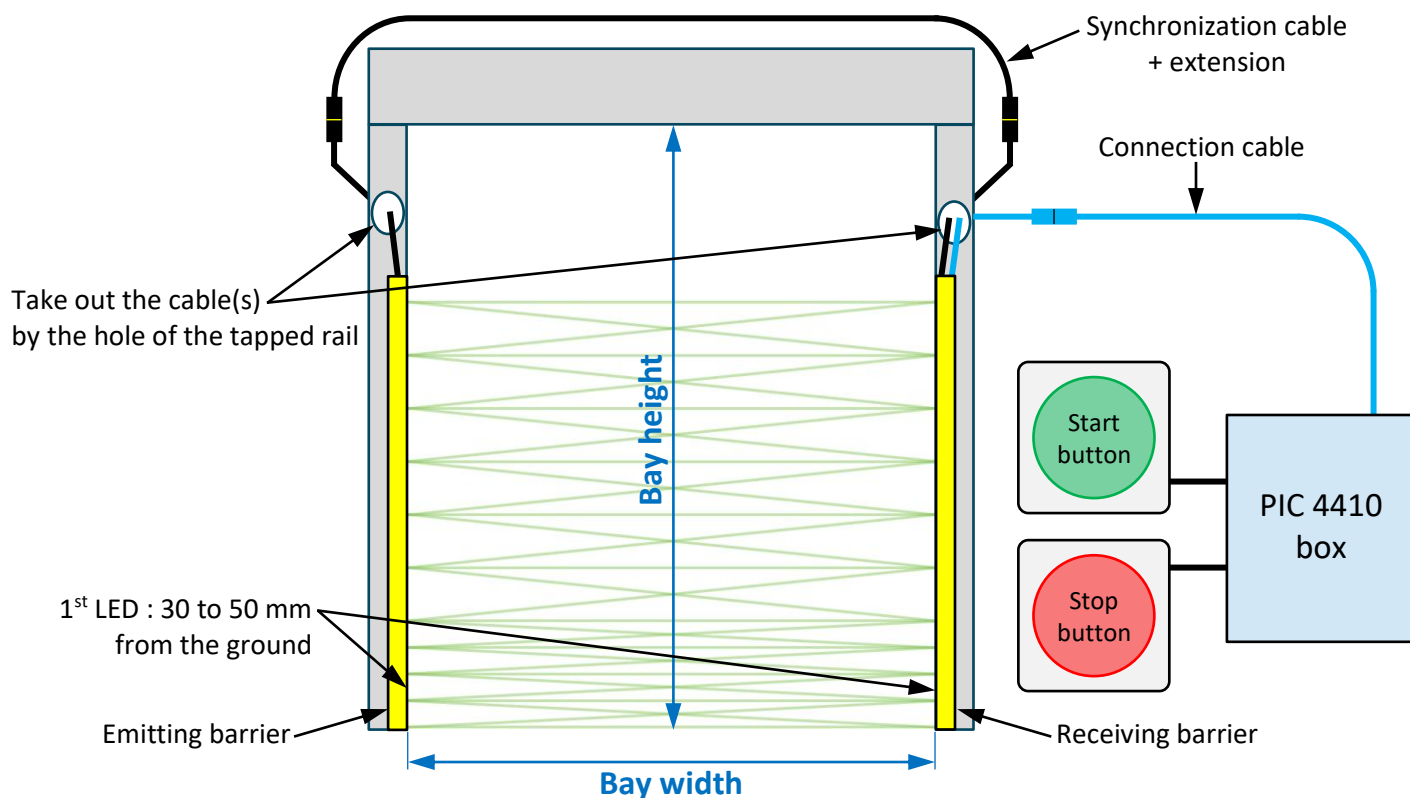
Reflective surfaces that are parallel or close to the protection zone can create or cause reflections that interfere with the proper functioning of the light curtain.

Keep a reasonable distance between the optical edges and any reflective surface.

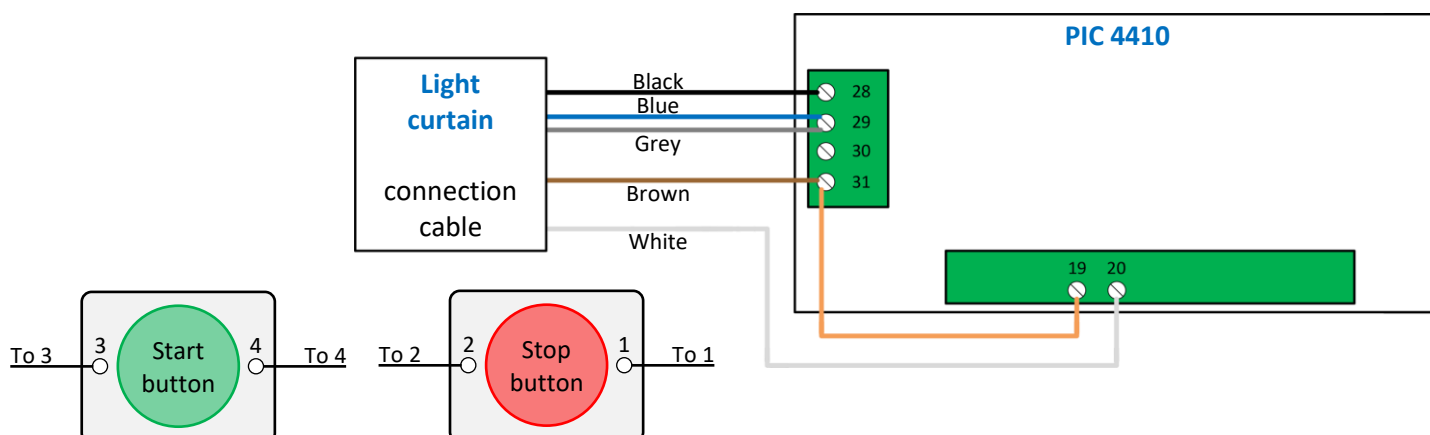
At the level of each ray path, a self-calibration takes place. upon activation, the ideal transmission line is determined and used. In order to avoid interruptions due to dust, the system controls the emitted power and adapts the intensity by increasing or reducing it as needed.



Connection diagram



⚠ Check that no electrical cable is in contact with a moving part of the door in operation.



Configuration of the PIC 4410 box



Mandatory self-learning to be performed, after setting the parameters.

	Functioning	
	PULSE	AUTOMATIC
F0 - Choice of scenario	00 - Sliding scenario without slowdown	
D0 - Generic settings menu	D1 - 01 - Manual 1 BP	D1 - 00 - Automatic
	D2 - On - With	
	D3 - Off - Without	
	D5 - Off - Without	
	D6 - Off - No	
	D9 - 04 - Dead man	
E0 - Input menu	E1 - 00 - Deactivated	
	E2 - 00 - Deactivated	
	E3 - 03 - Security closure without self-test	
	E8 - Off	
J0 - Output menu	J1 - 00 - Strike plate	
	J2 - 03 - Self-test output	
	J9 - 00	

Note : Scan the list of parameters several times, to **set the set of ALL parameters**.

Example : The menu E3 - 03 → Enables access to the D3 menu.

Description of the state of LEDS (light curtain)

Receiving edge (Rx)			Emitting edge (Tx)	
LED green	LED red	Sensor status	LED green	Emitting edge
●	○	Free protected field	●	Voltage OK
○	●	Protected area interrupted or door closed	○	No voltage or defective optical edge
○	⚡	Start (slow flashing)		
○	⚡	Internal error (fast flashing)		
○	○	No voltage or defective optical edge		

● = Illuminated LED

○ = LED off

⚡ = Flashing LED

Commissioning

- Self-learning is done.
- The settings of the box are provided.
- Activate the main supply current and the door control.
Note : The receiver LEDS flash during startup.
- Check the status of the LEDS on the optical edges (powered on, green LEDS lit).
- Test if the system is working correctly :
 - Let the door open and close.
 - Interrupt the optical beams during opening and closing movements.
- The implementation of the door is done.

Malfunctions of light curtains

Tx LED green	Rx LED green	Rx LED red	Measure
LED off	LED off	LED off	<ul style="list-style-type: none"> • Check the electrical connections. • Check the power supply of the control cabinet.
LED off	LED off	LED red	<ul style="list-style-type: none"> • Check the connection of the sync cable.
LED green	LED green	LED off	<ul style="list-style-type: none"> • Be sure that the optical edges are not mounted close to any shiny or reflective surface. • Restart the system.
LED off/on (green shimmering)	LED off	LED off/on (red shimmering)	<ul style="list-style-type: none"> • Check the supply voltage. • Check the connections.
LED green	LED off	LED off/on (slow flashing, red)	<ul style="list-style-type: none"> • Be sure that the protected field is not interrupted. • Check the alignment of the light curtain. • Clean the items.
LED green	LED off/on (green shimmering)	LED off/on (red shimmering)	<ul style="list-style-type: none"> • Be sure that the protected field is not interrupted. • Clean the items. • Be sure that the cables and optical edges are located far from all sources of electromagnetic interference. • Ensure that the transmitter and receiver are correctly aligned as well as during the closing of the door (example : vibrations that misalign the optical edges). • Restart the system.
LED green	LED off	LED red	<ul style="list-style-type: none"> • Be sure that the protected field is not interrupted. • Door completely reopened. • Clean the items. • Check the alignment of the light curtain. • Check that the Test input is connected to the Test output signal of the gate control unit, that the signal level and logic (HIGH/LOW) are correct. If the test input is not used, connect it to Usp. • Measure the supply voltage. • Restart the system.
LED off	LED off	LED off/on (slow flashing, red)	<ul style="list-style-type: none"> • Check the connection of the sync cable.
LED green	LED off	LED off/on (fast flashing, red 5Hz)	Appearance internal error <ul style="list-style-type: none"> • Restart the system. • Replace the edge Rx.

IMPORTANT : Each time a parameter is changed, the system must be restarted.

Maintenance

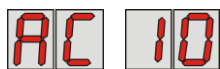
Although the light curtain does not require regular maintenance, a periodic functional check is highly recommended :

- Be sure that the optical elements are free from dust and dirt.
If necessary, clean the optical face with a soft cloth.
- Be sure that the optical edges are securely fixed.
- Check the mounting position, cables and sensor connection.

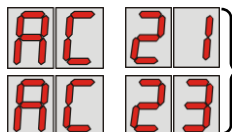
Note : Deterioration of the optical elements.

- Never use solvents, cleaners, abrasive towels or pressure washer, to clean the sensor.
- Do not scratch the optical elements during cleaning.

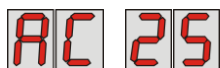
Most common errors and information



Permanent control :
Check the controller connections.

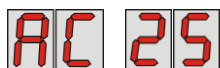


Activated cells :
Check the connections and that the cells are functioning correctly.



Activated safety edge :
Check the connections, see chapter : Safety connections (resistive safety edge).

OR



With light curtain :
Obstacle in the bay detected.

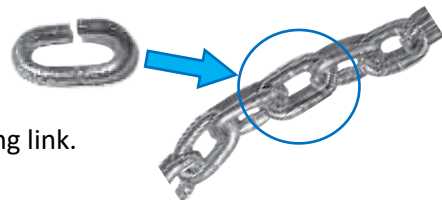
Note : for other errors, see chapter : Programming menu layout (default management).

In the case of a chain hoist

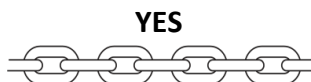
Modification of the winch chain length :

The winch chain is assembled by an open-link type connecting element.

It can be opened at the junction point and be lengthened or shortened by connecting link.
The connecting links must be carefully bent together.



In case of modification of the winch chain length,
one will ensure that it is not twisted.



To detach and display next to the door

Troubleshooting help

The door doesn't work :

- Check the power supply and the fuses.
- If the operator has been used extensively, wait for it to cool down; the temperature sensor will reactivate automatically.
- If the operator has been used in emergency operation mode, check that the operator has been re-engaged.
- Contact your installer.

The door stops while in operation :

- Check the power supply and the fuses.
- Check for the absence of obstacles and « hard spots » which would hinder the shutter's movement.
- Contact your installer.

Emergency operation

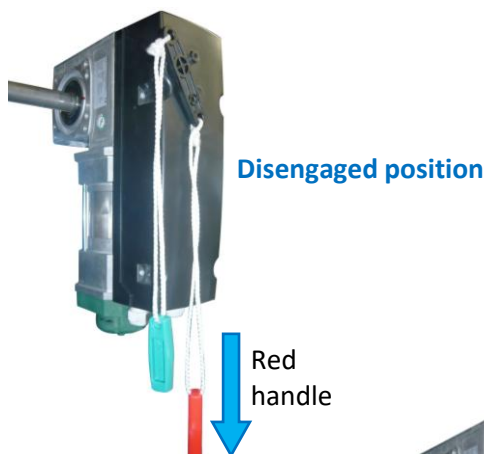


Disengage the operator, closed door !

If the door is opened (totally or partially), make sure there is no one in the bay !

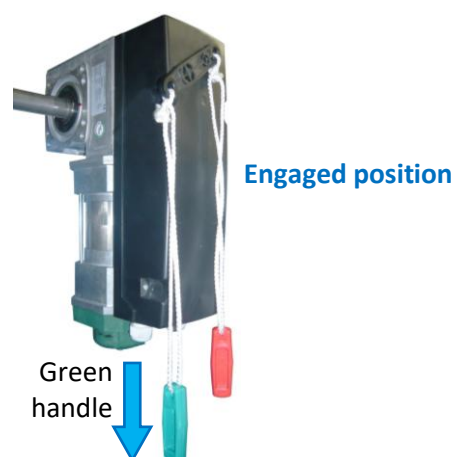
The door could fall, in case of imbalance.

1. Pull on the 1st handle (red) to disengage.



2. You can then operate the door manually.

3. After using the emergency maneuver, pull on the 2nd handle (green) to engage.



Customer service contact

(Installer's stamp)

Chain hoist

By actuating the release handles (red and green), we switch mechanically between the manual or motorized mode. The door must not be maneuvered with manual troubleshooting, beyond its final positions ; this would lead to the triggering safety limit of over-travel and the electrical operation of the door would no longer be possible.

Manual operation for troubleshooting is provided for opening and closing the door, without electrical energy.

Red handle : Switching to manual operation (the traction torque is max. 390 N).
Open or close the door by the chain hoist.

Green handle : Commutation in motor operation (the traction torque is max. 390 N).

Manually maneuver :

1. Operate the red handle, until it is engaged.
2. The operator goes into manual mode.
3. Operate the chain, in order to move the door.

Motorized maneuver :

1. Operate the green handle, until it is engaged.
2. The operator goes into motorized mode.
3. Operate the operator with the electric control components.

