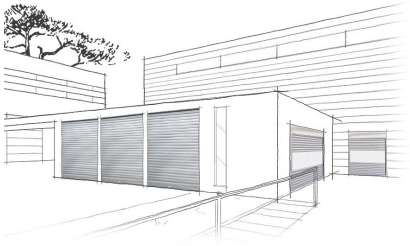
LA TOULOUSAINE

04/21

Manual: N° 1433

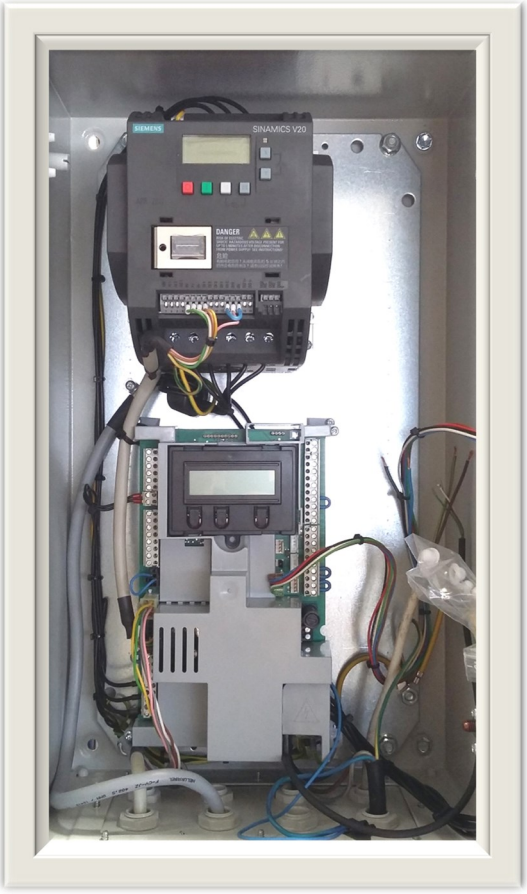
Installation, connection & programming

Rapid insulated Murax shutter



CS 310 FU Box

with frequency converter



(Document reserved for installers)

Contents

Required material

- Lifting equipment
- Clamps
- Spirit level
- Plumb bob
- Tape meter (5m)
- Percussion drill
- 8, 10, 15 and 17 mm flat spanners
- 5” hexagonal wrenches
- 10, 15 and 17 mm pipe wrenches
- Screwdriver
- Grease with brush
- Power pliers

Installation instructions

WARNING!

To reduce the risks, read the following instructions carefully before installation.
Pay close attention to all markings in the text.
Failure to follow all the elements of this manual in all respects may compromise the proper operation of the system, lead to dangerous situations and in any case void the guarantee of proper operation of the product.

* The device described in this booklet must only be used for the purpose for which it was expressly designed, namely : Control system for shutter and grille (as defined in standard EN 13241 + A2).

* The entire installation must be carried out in accordance with the state of the art and, in particular, in compliance with the directives :
  - 2004/108/EC Electromagnetic Directive
  - 2006/95/EC Low Voltage Directive
  - 2006/42/EC Machinery Directive
  and the applicable sections of the corresponding standards in force, including NFC15-100, mainly for the conditions of connection, insulation and protection of persons 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 conditions.

* The materials used must be adapted to the atmospheric conditions of the location.

* If there is any doubt about the safety and/or reliability of the installation of this product, stop the installation and contact us.

* Before performing any cleaning or maintenance work, turn off the power to the unit.

* In the event of failure or malfunction, turn off the power immediately and contact technical support. Any repairs must be carried out by specialized personnel who must ensure that only original and certified spare parts are used.

* The work carried out is entirely the responsibility of the installer.
  We decline all responsibility in case of :
  - Electrical installation that does not comply with current standards, especially in the case of an ineffective protective circuit (earthing).
  - Unsuitable adjustments made by the customer that may lead to a dangerous situation or destruction of the equipment.

* The installer must ensure that the system is in good working order, including all safety functions before use.

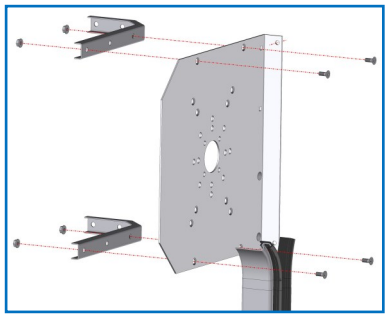
* Keep this manual for future reference.

Operator information

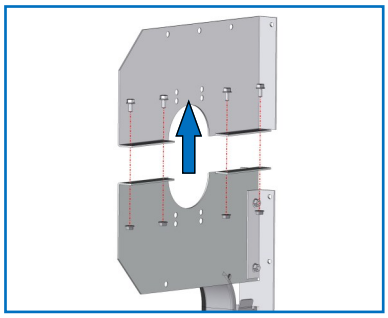
	OPERATOR		
	R400	R750	R1250
Output torque (Nm)	400	750	1250
Output rotation speed (rpm) at 50Hz	24		
Operator speed (rpm) at 50Hz	1350	1365	1400
Operator power (W)	1700	3000	4000
Power factor (cosine Phi) of the operator	0.71	0.8	0.73
Operating voltage (V)	400/3~ + N		
Power supply frequency (Hz)	50		
Control circuit voltage (V)	24		
Nominal motor current (A)	4,2	7	10
Max. cycles per hour	20		
Power cable to be provided on site (mm²)	5 x 2,5		
Fuse protection to be provided on site (A)	10		
Protection class (IP)	54		
Temperature range (°C)	-20 / +60		
Continuous sound pressure level (dB (A))	< 70		
Unit weight (Kg)	32	43	72
Ø Keyed shaft (mm)	40	50	55

Installation of the axis

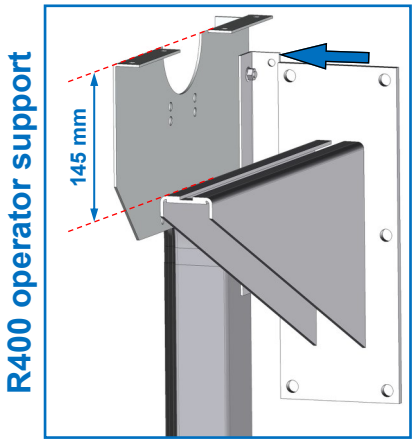
1- Opposite side to the operator (OO) :
- Attach the winding plate to the wall.
- Attach the 2 brackets provided.



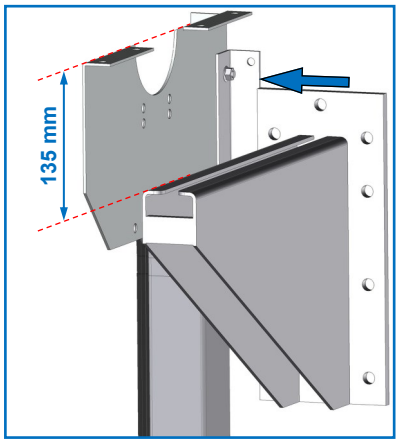
2- Operator side (OS) :
- Disassemble the upper half winding plate.

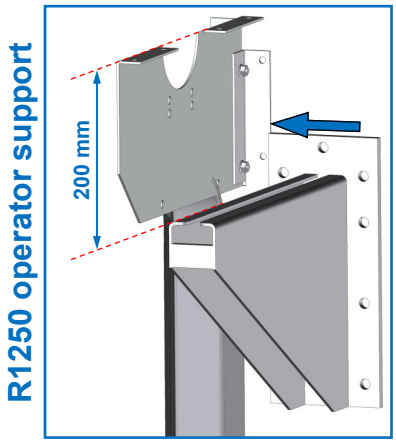


3- Operator side (OS) : Secure the operator mount to the junction bracket.



Firmly attach the support to the wall with the steel pins and 6 TH M14 screws (pins and screws not provided).

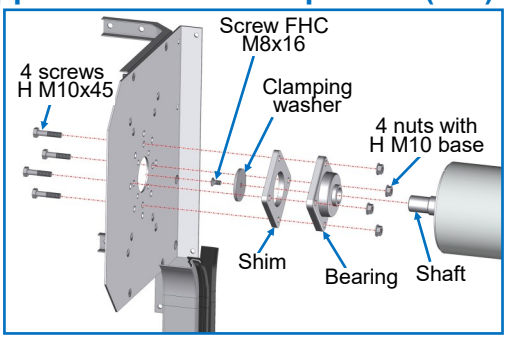




Firmly attach the support to the wall with the steel pins and 10 TH M12 screws (pins and screws not provided).

The weight of the shutter is carried by the winding plate (OS) and the operator support ; therefore the support must be attached to the wall very carefully.

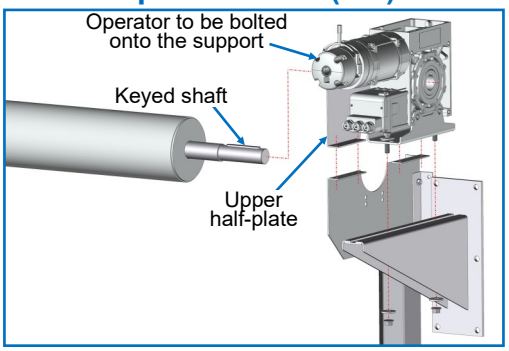
Opposite side to the operator (OO)



4- Installing the shaft :

- Fit the bearing onto the shaft, screw the clamping washer to the end of the shaft with the FHC M8x16 screw with threadlock.
- On the operator side, position the keyed shaft on the lower half-plate.
- On the opposite side, screw the bearing to the plate with the corresponding screws, inserting shims in between them.

Operator side (OS)



5- Installing the operator : Stick it on the keyed shaft.

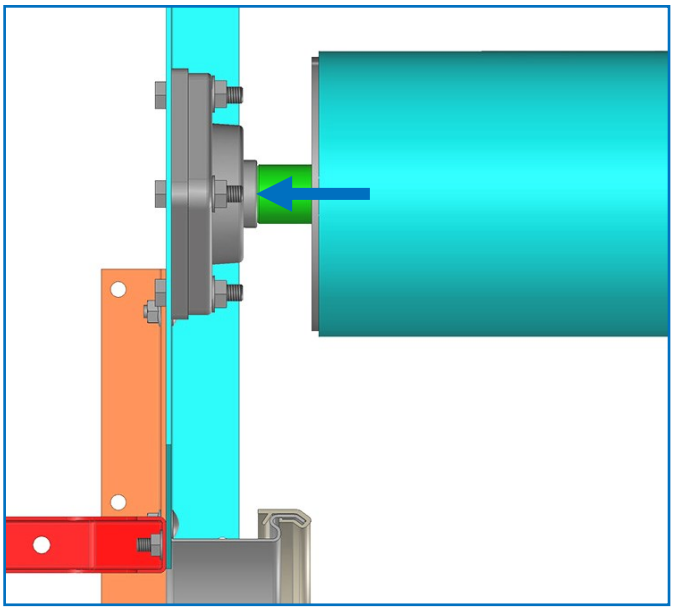
The axis must be parallel with the header and the keyed shaft must be centered on the plate.

Position it on its support and attach it with 2 bolts M12x45 and 4 washers of 12 (R400/R750) or 2 bolts M14x60 and 4 washers of 14 (R1250).
Reassemble the upper half winding plate and attach it to the wall.

The front plates must remain parallel throughout the entire operation, so use additional supports (not provided).

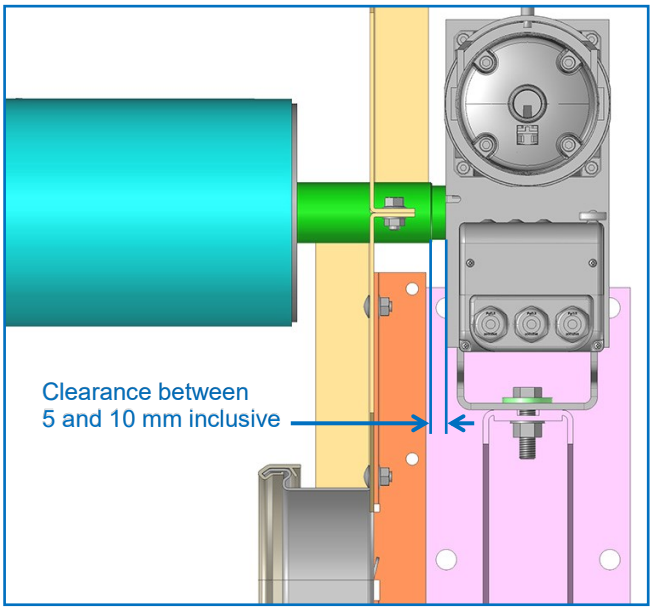
6- Once the structure is assembled, check :

Opposite side to the operator (OO)



Shoulder up against the bearing

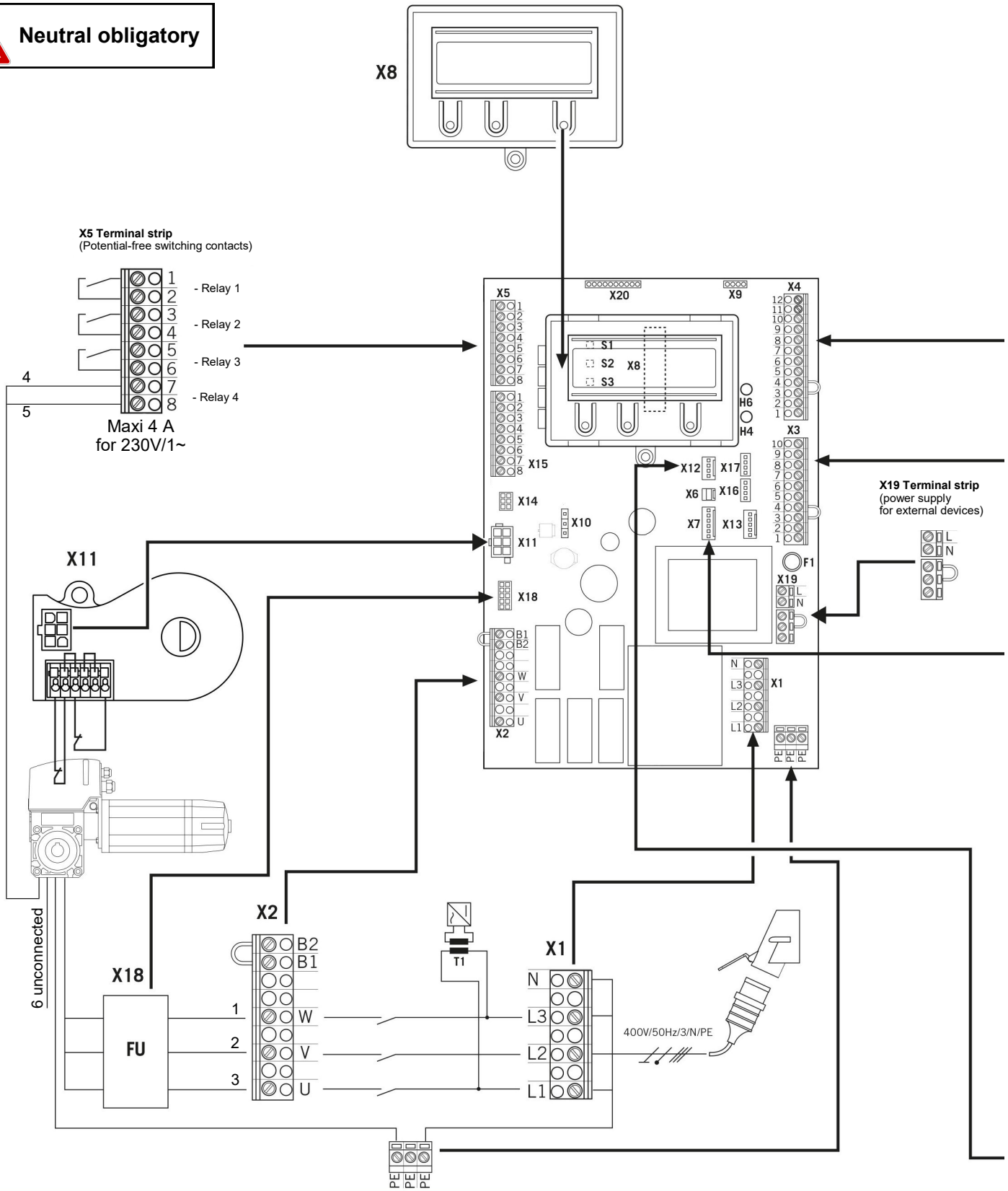
Operator side (OS)

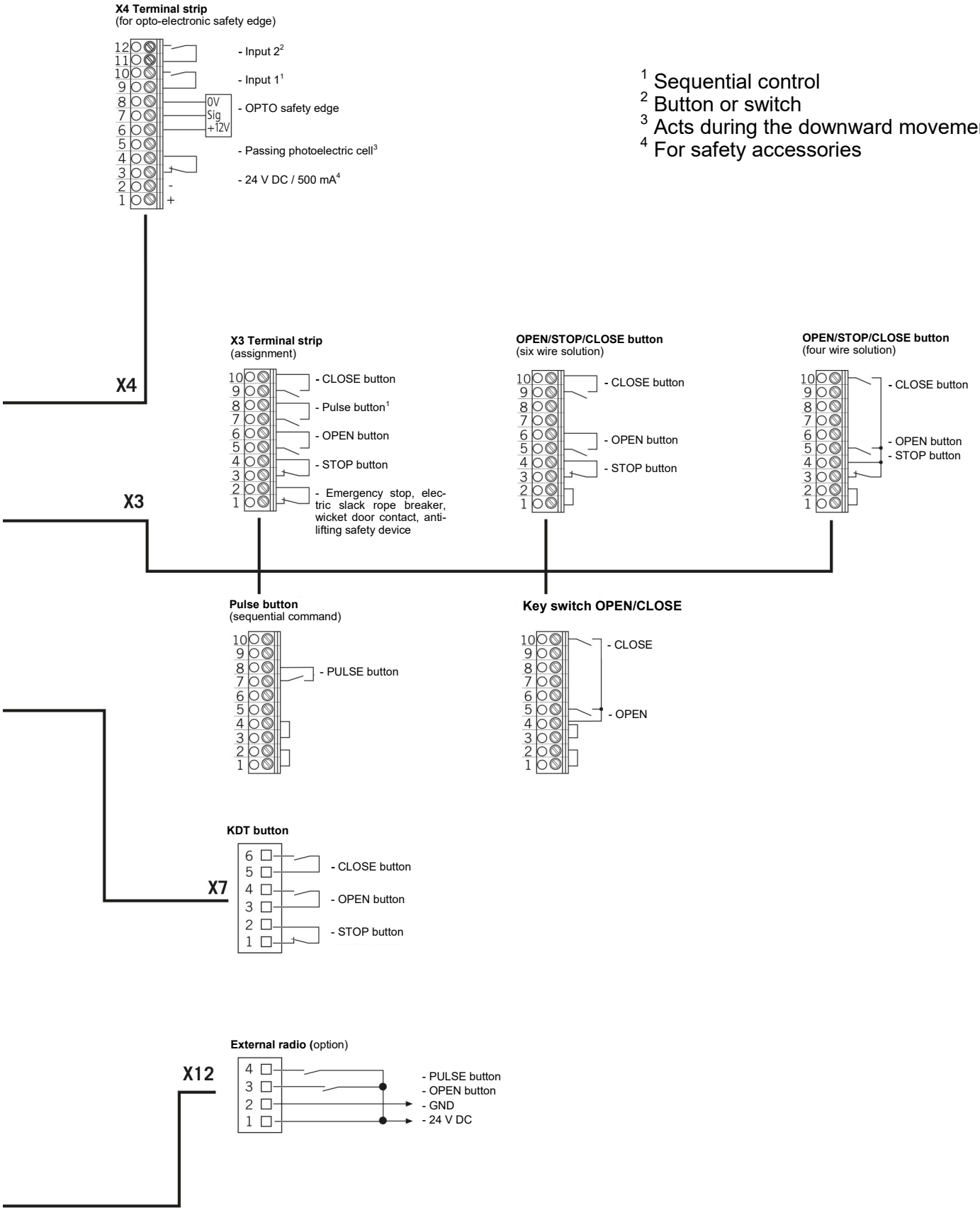


Between the shoulder and the operator

Connection to the box

Neutral obligatory

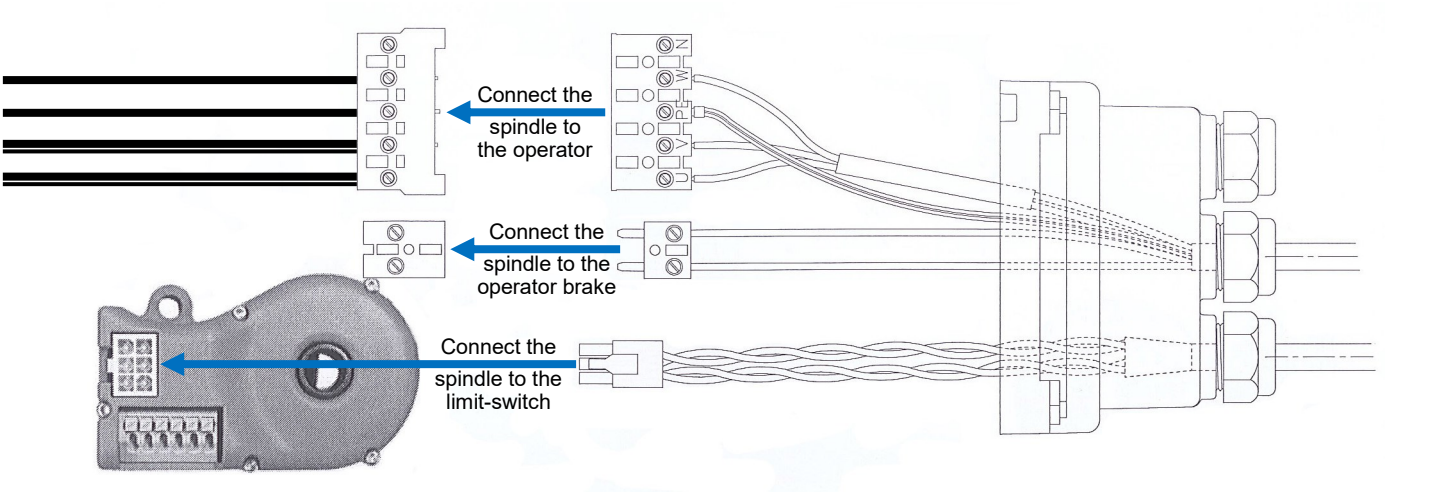




Ensure the power line is protected using an upstream differential circuit-breaker of type B or B+.
Ensure that in close proximity to the operator, there is :

- A thermal protection device for the operator.
- A power cut-off system, which is accessible to the user.

Connection to the operator



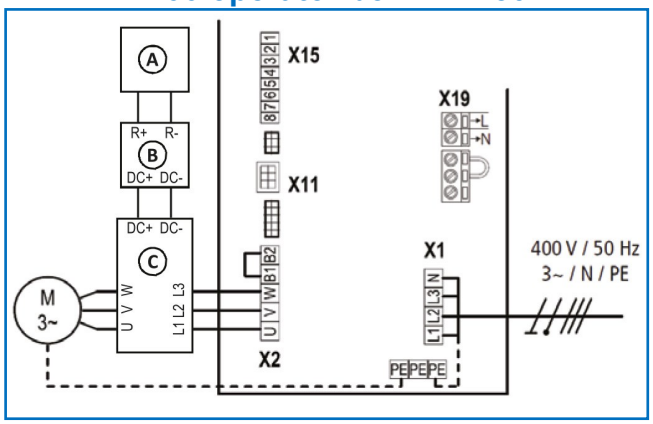
Connect all accessories and safety devices, so that they are recognized by the microprocessor when the unit is switched on.

Putting into operation

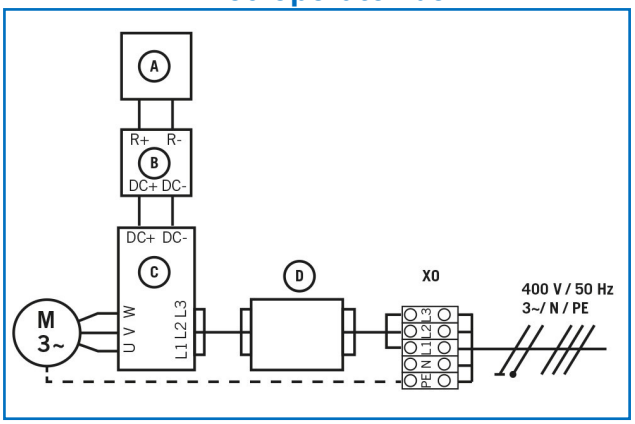
Please note : *Unscrew the cover to access terminal X1.*

Connection of the box to the mains 400V + N Tri :

R400 operator box or R750



R1250 operator box



Ⓐ Braking resistor.

Ⓑ Brake module.

Ⓒ Frequency converter.

Ⓓ Load contactor.

**A frequency converter generates continuous leakage currents.
To prevent unintentional tripping of the earth leakage circuit breaker, it is essential to install one, type B or B+, separate for each door.**

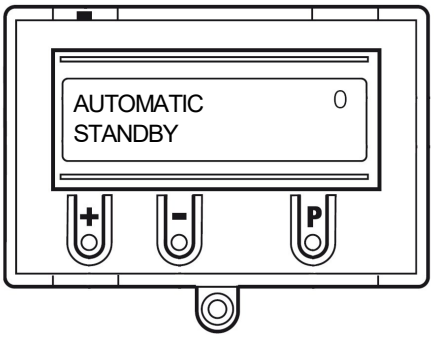
Language selection

Display upon activation : | JUSTIERUNG | 5235 | (ADJUSTMENT)

- *Hold down **P** for > **1s*** → | EINGABE | | (INPUT)
- *Hold down **+** and **-** for > **2s*** → | EINGABE
DEUTSCH | | (INPUT)
(GERMAN)
- *Press on **P** (flashes)* → | EINGABE
DEUTSCH | (flashes) _ | (INPUT)
(GERMAN)
- *Press **+** until language selection* → | INPUT
ENGLISH | (flashes) _ |
- *Press **P** to set the language* → | INPUT
ENGLISH | |
- *Exit **INPUT** mode by holding down **+** and **-** for > **1s***

Setting the limit-switches

On the LCD screen



- Select the **ADJUSTMENT** mode, by holding down the **P** button → | ADJUSTMENT
STANDBY | |

- **Setting the top limit-switch :**
  Move the door to the required OPEN limit-switch, by pressing the **+** button.

> **If the shutter does not go up, reverse the direction of operator rotation, pressing buttons + and - for > 5 seconds simultaneously.**
> **The screen displays : OS LEFT ROT.**
> (Any saved limit-switch positions are deleted).
> **Reset the limit switches.**

  Record the limit switch OPEN, first holding down the button **P**
  and while holding **P**, hold **+** until display → | ADJUSTMENT
RECORD UP | |

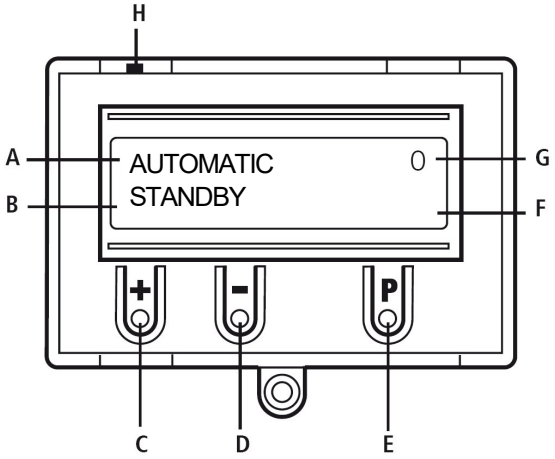
- **Setting the bottom limit-switch position:**
  Move the door to the required CLOSE limit-switch position, by pressing the **-** button.
  Memorize the limit switch CLOSE, first holding the button **P**
  and while holding **P**, hold **-** until display → | ADJUSTMENT
RECORD DOWN | |

- **The limit-switches have now been set.**
- Exit the **ADJUSTMENT** mode, by holding down the **P** until **AUTOMATIC** mode is selected.

Please note : For a more precise setting of the limit switches,
see parameters **ADJUST. OPEN** and **ADJUST. CLOSE**

Presentation of the LCD screen

A - Operating mode / Diagnostic info
B - Parameter / Diagnostic info
C - Button (+)
D - Button (-)
E - Button (P)
F - Value / Status
G - Value / Status
H - Jumper



Selecting a mode on the LCD screen (A) :
*By holding down the **P** button, you can select the following modes :*
1 - AUTOMATIC **2 - ADJUSTMENT** **3 - INPUT** **4 - DIAGNOSTIC**

Please note : If the **H jumper** is removed, the (**+**), (**-**) and (**P**) buttons will not work.
The screen display will continue to work.

Description of mode 1 : AUTOMATIC (AUTOHOLD = MOD1)
The door will operate in this mode.

On screen : - The operating mode is displayed (e.g. AUTOMATIC).
- The shutter status or potential faults are displayed (e.g. STANDBY).

MANUAL (AUTOHOLD = MOD2/3/4/5/6)
The door will operate in this mode.

Description of mode 2 : ADJUSTMENT = *Setting the limit-switches.*

In ADJUSTMENT mode, there is no stop position because the limit-switches are reached. Overrunning the limit-switches may damage the door.

On screen : - The limit-switch value is displayed.

Description of mode 3 : INPUT = *Modification of different parameters for shutter operation of the curtain.*

On screen : - Display the selected parameter.
- The set value / status is displayed.

Description of mode 4 : DIAGNOSTIC = *The status of the controls and safety devices is displayed.*

On screen : - Display of the elements to be checked.
- The checked component value is displayed.

Table of parameters
(factory standard configuration)

AUTOMATIC STANDBY

*Hold down **P** for > **1s***

ADJUSTEMENT STANDBY

*Hold down **P** for > **1s***

INPUT

*Hold down **P** for > **1s***

DIAGNOSTIC

*Hold down **P** for > **1s***

Return to main screen

AUTOMATIC STANDBY

*Hold down **+** and **-** for > **2s***

Scroll menu forward
*Press **+***

Scroll menu backwards
*Press **-***

Select parameter
*Press **P***

Increase value
*Press **+***

Decrease value
*Press **-***

Save value
*Press **P***

*Exit mode **INPUT***
*Hold down **+** and **-** for > **1s***

Scroll menu forward
*Press **+***

Scroll menu backwards
*Press **-***

Back to mode
AUTOMATIC
*Press on **P***

It is not possible to make modifications in this mode

TOP LS	ON
BOTTOM LS	ON
OPEN BUTTON	OFF
CLOSE BUTTON	OFF
INPUT 1	OFF
INPUT2	- / OFF
SKS	ON
SKS 3	- / ON
SKS 4	- / ON
PULSE	OFF
TIMER	OFF
PHOTO CELL.	ON
PHOTO CELL. 2	ON
REAR CHAIN	ON
STOP	ON
OS ROT	DROITE
CYCLE	000000
SERVICE	OFF
AWG	0000
ERROR MEMORY	ERROR...

ENGLISH	
ADJUST. OPEN	0
ADJUST. CLOSE	0
P.INT. OPEN	A
P.INT. CLOSE	A
OPENING TIME	OFF
WARNING. START	OFF
WARNING	OFF
AUTO CLOSE	MOD1
CLOSE RAP	OFF
RELAY 1	MOD6
RELAY 2	MOD7
RELAY 3	MOD1
RELAY 4	MOD14
LIGHT STANDBY	MOD1
SKS	A
T ODC	MOD2
DW-POINT	20
SKS FUNC.	MOD1
SKS INV	MOD1
REVERSE OFF	50
PHOTO CELL. 1	A
P/C FUNC. 1	MOD1
P/C FUNC. 2	MOD1
CEL POINT	A
PULSE	MOD1
INPUT 1	MOD1
INPUT 2	A
SKS3	MOD1
SKS4	MOD1
D OF MOV	A
T. INVERSE	300
END OF C.	A
AUTOHOLD	MOD1
FORCE	10
RESET MSBUS	OFF
RESTARTING	OFF
FACTORY	MOD8
RESET	OFF
CODE PN 2	1111
SERVICE	OFF
CONVERT.	MOD2
P.BRAKE OPEN	-250
P.BRAKE CLOSE	250
P.BRAKE FE2	A
SPEED OPEN.	50
SPEED CLOSE.	50
SPEED MX CLOSE	50
OPEN SLOW	25
CLOSE SLOW	25
ACCEL. OPEN.	2,0
ACCEL. CLOSE.	2,0
TEMPOR. OPEN	2,0
TEMPOR. CLOSE.	2,0
ACCEL. MX	2,0
TEMPOR. MX	2,0
ACCEL. SKS	0,5
TEMPOR. SKS	0,1
ACCEL. WGI	0,5
TEMPOR. WGI	0,5
TEMPOR. STOP	0,5
RESET CONV.	OFF
OPERATOR V	400
OPERATOR I	
OPERATOR P	
OPERATOR PHI	
OPERATOR HZ	50
OPERATOR T/M	
OPERATOR HZ MIN	10
OPERATOR HZ MAX	87
T BRAKE	50
EXPERT MENU	OFF
BOOST CONT.	50
BOOST ACCEL.	50
BOOST START	0

Operator		
R400	R750	R1250
400		
4.2	7	10
1700	3000	4000
0.71	0.8	0.73
50		
1350	1365	1400

OFF: Access to essential parameters
ON: Access to all parameters

Choose the mode of functioning

Set the limit-switches before selecting the operating mode.

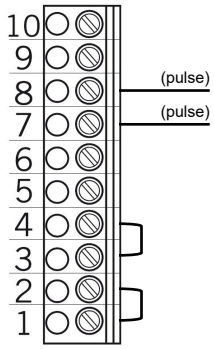
The fixed controls must be installed within sight of the door but away from any moving parts and at a height of at least 1.5 m from the floor.

Use one switch for a single operator. It is completely prohibited to control several operators with a single monopolar switch.

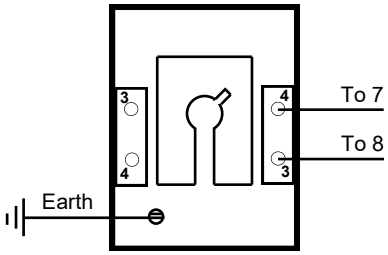
Pulse operation
Up/Down Pulse

1- Connection of the controls :

X3 Terminal strip

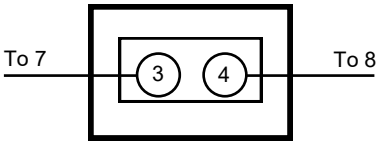


CS 310 Box terminal block



Key switch box (BCE2/BCA1)

or



1 button box (BBA)

Please note : If operating with the remote control, refer to the corresponding receiver box manual.

2- Check :

OPENING TIME	OFF	If > 0 : automatic operation

3- Parameters to be modified for pulse operation :

WARNING START	3	Advance notice before opening and closing
SKS	MOD1	Opto-electronic safety edge
PHOTO CELL. 1	MOD2	Photo. cells Contact NC
END OF C.	MOD1	Digital limit switch
AUTOMATED	MOD1	Pulse/automatic operation

Automatic operation

Pulse ascent and automatic re-closing

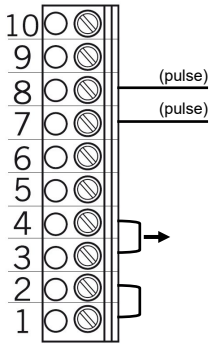
The timed re-closing is integrated into the automatic operating mode (no manual control), cf : NF EN 12 453 - NF EN 13 241-1

Ensure that the mandatory protection levels are in place for automatic operation

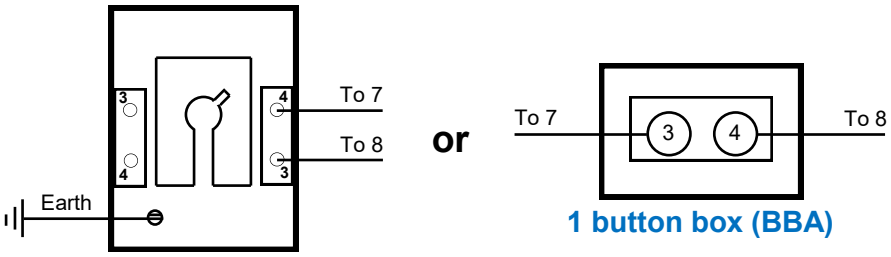
1- Connection of the controls :

Remove the bridge between 3 and 4

X3 Terminal strip



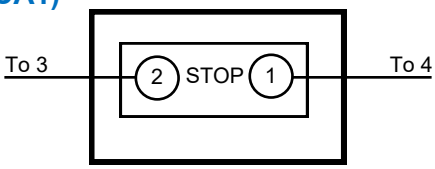
CS 310 Box terminal block



Key switch box (BCE2/BCA1)

1 button box (BBA)

+



with button box (STOP)

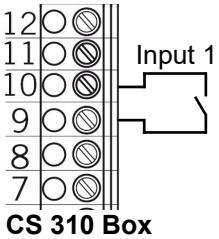
Please note : If operating with the remote control, refer to the corresponding receiver box manual.

2- Paramters to be modified for automatic operation :

OPENING TIME	10	Open shutter delay
WARNING START	3	Advance notice before opening and closing
SKS	MOD1	Opto-electronic safety edge
PHOTO CELL. 1	MOD2	Photo. cells NC contact
PULSE	MOD2	Opening priority
END OF C.	MOD1	Digital limit switch
AUTOHOLD	MOD1	Pulse/automatic operation

Partial opening (see input 1 functions)

X4 Terminal strip



CS 310 Box terminal block

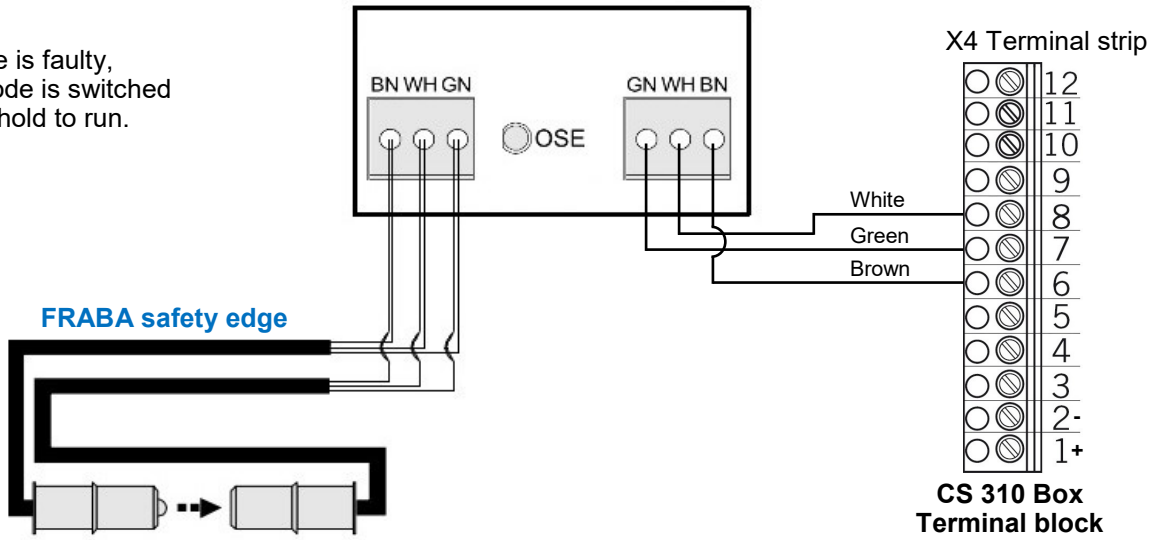
Partial opening setting :

- Move the door to the desired position using the buttons on the front of the box.
- Press on **P** until **ENTRY** mode.
- Press **+** and **-** for > **2s**, to enter the mode **INPUT**.
- Press on **+** or **-** until display of **P.INT. OPEN** (displayed value is **A**).
- Press **P** to validate the door position.
- Press **P** again to save the value.
- Exit **INPUT** mode.

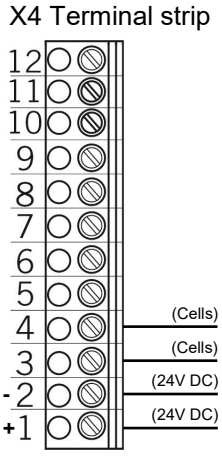
Safety connections

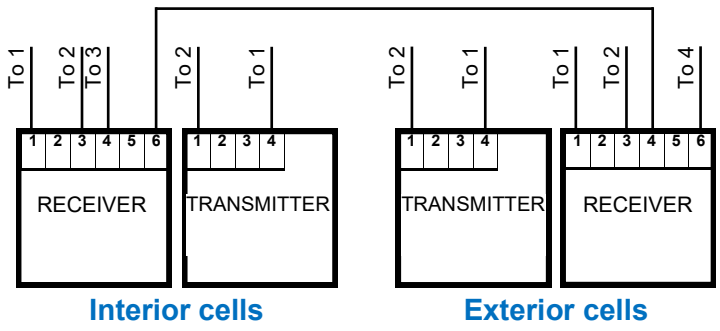
Bottom safety edge with auto-test

Please note :
If the safety edge is faulty, the operating mode is switched automatically to hold to run.



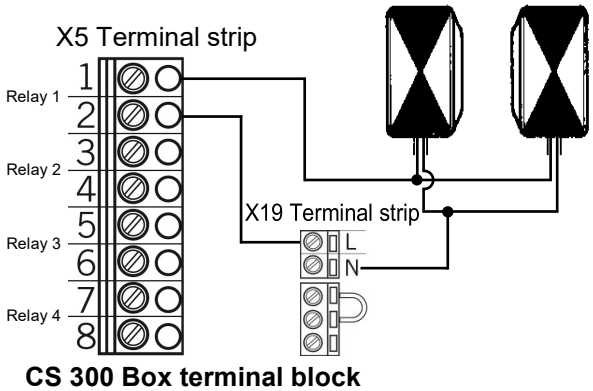
Bottom cells





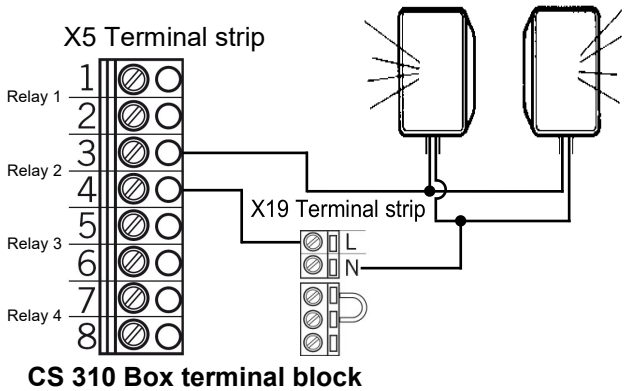
Please note :
If a cell set is defective, the operating mode will automatically switch to mixed mode.

Orange flashing lights (option)
230V - MAXI 4 A



RELAY 1	MOD2	Flashing lights

Illumination lights (option)
230V - MAXI 4 A

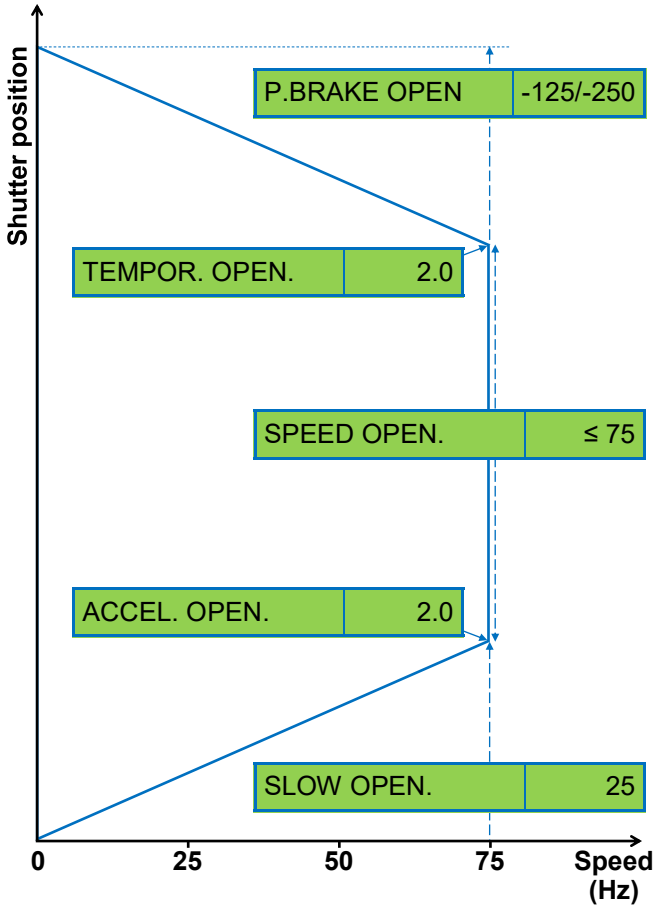


RELAY 2	MOD25	Lighting of area

Setting the frequency converter

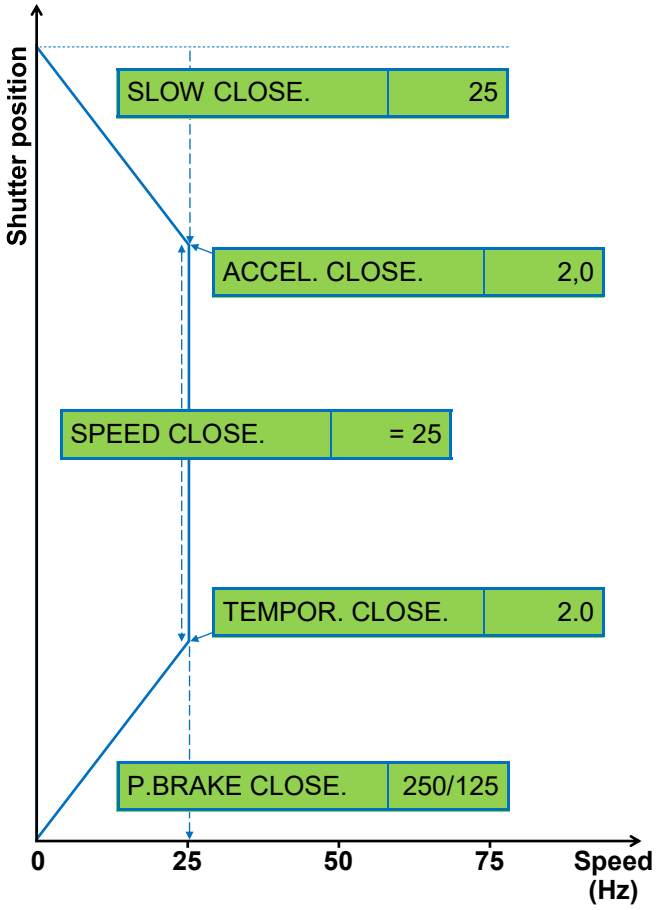
Opening

Opening :
SPEED OPEN. ≤ 75 Hertz



Closure

Closing :
SPEED CLOSE = 25 Hertz



Visual on the parameter table

P.BRAKE OPEN	-125/-250
...	
SPEED OPEN.	≤ 75
...	
SLOW OPEN.	25
...	
ACCEL. OPEN.	2,0
...	
TEMPOR. OPEN.	2,0

Please note : The range of **P.BRAKE OPEN** must be between **-125** and **-250**

P.BRAKE CLOSE	250/125
...	
SPEED CLOSE	= 25
...	
SLOW CLOSE	25
...	
ACCEL. CLOSE	2,0
...	
TEMPOR. CLOSE	2,0

Please note : The range of **P.BRAKE CLOSE** must be between **250** and **125**

The closing speed of the shutter (SPEED CLOSE.) must be changed to a value equal to 25 Hertz in accordance with EN 13241 + A2.

Presentation of functions

AUTOMATIC mode :

Display		Description
AUTOMATIC TEACH		Movement time is learned automatically
AUTOMATIC OPEN		The door moves to the top limit-switch position
AUTOMATIC CLOSE		The door moves to the bottom limit-switch position
AUTOMATIC STANDBY		The door is in the intermediate position
AUTOMATIC STANDBY	O	The door is in the top limit-switch position
AUTOMATIC STANDBY	o	The door is in partial opening position (parameter "P.INT. OPEN")
AUTOMATIC STANDBY	U	The door is in the bottom limit-switch position
AUTOMATIC STANDBY	u	The door is in the partially closed position (parameter "P.INT. CLOSE")
AUTOMATIC STANDBY	r	Door is in the reverse motion disabling range (SKS)
AUTOMATIC PERMANENT SIGNAL		A signal is emitted continuously : Unauthorized control device or programmable input (defective component to be replaced). **Exception :** The signal comes from the plug-in timer or is output via programmable input 1, if this is defined as a timer function (MOD4) or fire alarm function (MOD5 to 9, 13).
AUTOMATIC CRASH SENSOR		The door collision sensor has been activated. (connection on strip X4, between 9 and 10, programmable input 1, MOD18) A vehicle (fork-lift truck) has probably hit the closed door.

Please note : If the **"AUTOHOLD"** parameter is set on **MOD2, 3, 4, 5 or 6** in **INPUT** mode, the screen display will change from **AUTOMATIC** to **MANUAL**.

Display	Description
MANUAL MANUAL LIFTING	The door moves to the top limit-switch position
MANUAL MANUAL DESCENT	The door moves to the bottom limit-switch position
MANUAL STANDBY	The door is in the intermediate position

INPUT mode :

Function	Description	Available settings	Factory settings
ENGLISH	Selecting a language	DEUTSCH ENGLISH FRANCAIS NEDERLANDS DANSK ESPANOL POLSKI CESKY ITALIANO SUOMI SVENSKA TÜRKÇE NORSK MAGYARUL	DEUTSCH
ADJUST. OPEN.	Precise adjustment of the high limit switch in relation to the saved high limit switch (LS OPEN). Visible only in systems with electronic limit switch.	-250 to 250	0
ADJUST. CLOSE	Precise adjustment of the low limit switch in relation to the saved low limit switch (LS CLOSE). Visible only in systems with electronic limit switch.	-250 to 250	0

Function	Description	Available settings	Factory settings
P.INT. OPEN	Adjustment of the partial opening in relation to the saved high limit switch (negative value display). Visible only with electronic limit switches. - Automatic teach-in of the position, see chapter : Partial opening.	A (learning) -1 = LS CLOSE	A
P.INT. CLOSE	Adjustment of the partial opening in relation to the saved bottom limit switch (positive value display). Visible only with electronic limit switches. - Automatic teach-in of the position.	A (learning) 1 = LS OPEN	A
OPENING TIME	After opening, the door moves automatically to CLOSE after the set values have elapsed. **Comment :** By pressing the CLOSE button, while opening, the closure is triggered immediately. By pressing the OPEN or STOP button during opening, the time starts from zero. If the safety edge interrupts an automatic closing, the opening time is multiplied by 2 and after 3 attempts, the automatic closing is cancelled.	OFF = Closing auto disabled 1 to 3600 seconds	OFF
START WARNING	A start warning is given before each trip.	OFF = OFF 1 - 10 seconds	OFF
WARNING	The warning time is activated before an automatic closing or closing by pulse operation. **Comment :** The time is added to the start warning.	OFF = OFF 1 - 300 seconds	OFF
CLOSED. AUTO	Automatic closing after the elapsed time (time delay). MOD1 : AUTO CLOSE from the high limit switch. MOD2 : AUTO CLOSE from partial opening. MOD3 : AUTO CLOSE from the high limit switch and partial opening. MOD4 : CLOSED. AUTO from all door positions.	MOD1 to MOD4	MOD1
CLOSED. RAP	Premature closure once through the cells. **Condition :** Connection of the cells at the height of the passage and setting of an opening time > to 0 seconds. MOD2 : The opening time is cancelled after passing the cells (the door closes immediately). MOD3 : The opening time is cancelled after the cells have been switched off for at least 2 seconds (no detection of persons). MOD4 : Same as MOD2, but the cells are without function during the opening of the door.	OFF = The opening time functions normally MOD2 to MOD4	OFF
RELAY 1 RELAY 2 RELAY 3	A relay mode from 1 to 13, 17 to 19, 21 to 43 and 60 to 62 can be assigned to each of the 4 relays. In addition, relay 4 can also be programmed from 14 to 16. MOD1 : (Red light 1) Warning - flashing, moving door - on* MOD2 : (Red light 2) Warning - flashing, moving door - flashing* MOD3 : (Red light 3) Warning - on, moving door - on* MOD4 : Pulse signal in inside opening command MOD5 : Fault signal MOD6 : Top limit-switch MOD7 : Bottom limit-switch MOD8 : Top limit-switch denied MOD9 : Bottom limit switch denied MOD10 : Partial opening position MOD11 : Partial closure position MOD12 : Partial closing position up to the low limit switch MOD13 : Magnetic latch function MOD14 : Brake MOD15 : Reverse brake MOD16 : Brake activated at the upper limit switch MOD17 : Safety edge activated or test error MOD18 : (Red light 4) Warning - flashing, moving door - off MOD19 : Partial opening position up to top limit-switch MOD21 : Anti-lift safety device test before opening (additional module required) MOD22 : Activation of radio transmission system 1 and 3 or light barrier test MOD23 : (Green light) Top limit switch - on, Warning - off, Door moving - off* MOD24 : Condenser activation for operator 230V 1Ph	MOD1 to MOD13 MOD17 to MOD19 MOD21 to MOD43 MOD60 to MOD62 MOD1 to MOD13 MOD17 to MOD19 MOD21 to MOD43 MOD60 to MOD62 MOD1 to MOD13 MOD17 to MOD19 MOD21 to MOD43 MOD60 to MOD62	MOD6 MOD7 MOD1

Function	Description	Available settings	Factory settings
RELAY 4	MOD25 : Yard light function 2 minutes after the opening command (also indirectly by pulse) MOD26 : Radio transmission system activation 2 MOD27 : Pulse signal after having reached the top limit-switch MOD28 : General relay off MOD29 : The door opens MOD30 : The door closes MOD31 : Continuous signal when the set maintenance interval is reached MOD32 : Battery operation MOD33 : No operation on battery MOD34 : BMA signal (fire alarm system) MOD35 : Cells in operation MOD36 : Wicket door locking cylinder MOD37 : Test stop signal of radio transmission system 1 and 3 MOD38 : Test light barrier 2 (input 2) MOD39 : LED Error MOD40 : Pulse signal in exterior opening command MOD41 : Test radio transmission system 4 in opening direction MOD43 : Motorization in motion MOD60 : (Red exterior light) Warning - flashing, door in motion - on MOD61 : (Red exterior light) Warning - flashing, door in motion - flashing MOD62 : (Outside green light) Top limit switch - on, Warning/door moving - off * When reverse traffic control is activated : INTERIOR LIGHT.	MOD1 to MOD19 MOD21 to MOD43 MOD60 to MOD62	MOD14
LIGHT STANDBY	Light control MOD1 : Off at standby MOD2 : On at standby MOD3 : Switches off at rest after 5 minutes	MOD1 to MOD3	MOD1
SKS	MOD1 : OSE (Opto-electronic sensor) MOD2 : 8 kΩ (electric safety edge) MOD3 : ODC (pneumatic safety edge) as NF with test MOD4 : OSE light barrier without test MOD5 : PNP light barrier with test MOD6 : PNP light barrier without test	A (auto-adaptive) MOD1 to MOD6	A
T ODC	Activation and deactivation of the test function for the connected pneumatic safety edge. Appears when setting the parameters SKS = MOD3. MOD1 : Test OFF MOD2 : Test ON	MOD1 to MOD2	MOD2
DW POINT	Point where the connected pneumatic safety edge (X4 between 5 and 6) is tested. Appears when setting the parameters SKS = MOD3. Adjustment in increments (AWG only) from the lower end deactivation point.	0 to 1000	20
SKS FUNC.	MOD1 : Stop + Reversal MOD2 : Stop + Reversal for 2 seconds	MOD1 to MOD2	MOD1
SKS INV	MOD1 : Stop + Reversal, between high limit switch and reversal point Stop, between reversal point and low limit switch. → For vertically closing doors. MOD2 : Stop+reversal, between high limit switch and reversal point No action, between reversal point and low limit switch. → For vertically closing doors with advanced position sensors. MOD3 : Stop + Reversal, between high and low limit switches. → For horizontally closing doors and devices with mechanical limit switches without prelimit switches. Comment : For systems with mechanical limit switches, the additional low limit switch serves as a changeover point.	MOD1 to MOD3	MOD1
INVERSE OFF	Inversion point. Point where the shutter reversal is disabled (SKS). Appears on systems with electronic limit switches (AWG). Adjustment in increments, starting from the lowest final switch-off point. For systems with mechanical limit switches, the additional low limit switch serves as a changeover point.	A (auto-adaptative) 1 to 1000	50
PHOTO CELL. 1	(Photoelectric) cells 1, mounted in the shutter passage area (connection to X4 between 1 and 4). MOD1 : MFZ two-wire system MOD2 : Contact NC/NPN MOD3 : PNP	A (auto-adaptative) MOD1 to MOD3	A

Function	Description	Available settings	Factory settings
P/C FUNC. 1	Operation of cell 1, in the shutter area. **Shutter Movements CLOSE** / **Shutter Movements OPEN** MOD1 : Stop + Reversal — No action MOD2 : Stop + Reversal for 2s — No action MOD3 : Stop — No action MOD4 : Stop — Stop MOD5 : Stop + Reversal — No person identification MOD6 : No action — Stop + Reversal MOD7 : No action — Stop + Reversal for 2s MOD8 : No action — Stop MOD9 : No person ID — Stop + Reversal	MOD1 to MOD9	MOD1
P/C FUNC. 2	Operation of cell 2, in the shutter area. Appears when parameters INPUT 1 = MOD15 are set. Connection only as NC contact to programmable input 1 (X4 between 9 and 10). The modes that can be selected are identical to those of the P/C FUNC function. 1.	MOD1 to MOD9	MOD1
CEL POINT	Cells 1 (X4 between 1 and 4) are not evaluated between the low limit switch and the CEL point. djustment in increments, starting from the lowest final switch-off point. Appears on systems with electronic limit switches.	A (auto-adaptative) 1 to LS OPEN	A
PULSE	Function to be assigned to the pulse button (X3 between 7 and 8). MOD1 : Open - Stop - Close - Stop (sequential control) MOD2 : Only opening, inactive in opening movement stop and opening during closing movement MOD3 : Only opening, stop during movement MOD4 : Only opening, inactive during movement MOD5 : Opening, closing from the upper limit switch	MOD1 to MOD5	MOD1
INPUT 1	Function to be assigned to input 1 (X4 between 9 and 10) MOD1 : Partial open button MOD2 : Switch OPEN PART MOD3 : AUTO CLOSE switch MOD4 : External TIMER (continuous OPERATION) MOD5 : Switch BMA 3 (partial opening) NO MOD6 : Switch BMA 1 (emergency closing) NO MOD7 : Switch BMA 1 (emergency closing) NO MOD8 : Switch BMA 2 (emergency opening) NO MOD9 : Switch BMA 2 (emergency opening) NO MOD10 : Ventilation function button (partial closure) NO MOD11 : Automatic close button MOD12 : Laser scanner (special solution) MOD13 : Switch BMA 3 (partial opening) NC MOD14 : Wicket door lock MOD15 : Photocells 2 NC MOD16 : Warning switch MOD17 : Pulse button MOD18 : NC collision sensor MOD30 : Internal opening button MOD31 : External opening button MOD32 : Close button (only active if safety edge and cell 1 are working No function in hold to run mode)	MOD1 to MOD18 MOD30 to MOD32	MOD1
INPUT 2 (SKS2)	Function to be assigned to input 2 (X4 between 11 and 12) OFF : Inactive MOD2 : Wicket door switch 8.2 KΩ, off in case of discrepancy MOD3 : Electric safety edge 8.2 KΩ, active in opening, stopping and reversing on activation MOD4 : Electric safety edge 8.2 KΩ, active in opening, stopping and reversing for 2s when activated MOD5 : Battery operation MOD6 : Motion sensor radar (special solution) MOD7 : Light barrier 2 (PNP) Please note : During 1st commissioning and after a Reset, input 2 is set to A (auto-adaptative). If no connected component is recognized, the input is automatically deactivated. OFF appears on the display and the entry must be activated manually.	A (auto-adaptative) OFF MOD2 to MOD7	MOD1

Function	Description	Available settings	Factory settings
SKS3	Setting of channel 1, pluggable signal transmission system (X20) OFF : Inactive MOD2 : Activated as safety edge in closing MOD3 : Activated as safety edge in opening MOD4 : Activated as a safety device (internal circuit)	OFF MOD2 to MOD4	OFF
SKS4	Setting of channel 2, pluggable signal transmission system (X20) The modes that can be selected are identical to those of the SKS3 function.	OFF MOD2 to MOD4	OFF
D OF MOV	Checking the maximum opening and closing time. The duration of the door movement is automatically programmed during the teach-in run. If there is a discrepancy of 20% (in both directions), a movement time error is displayed on the screen. It is possible to change the movement time manually after the automatic learning process.	A (auto-adaptative) OFF 1 to 300 seconds	A
T. INVERSE	Operator stop time for each voluntary change of direction. The reversal time if the safety edge is activated during the closing movement is 1/4 of the set time.	100 to 5000 milliseconds	300 milliseconds
END OF C.	Choice of limit-switches to be evaluated. MOD1 : Encoder (AWG) MOD2 : Mechanical Limit Switch (MLS) MOD3 : No function MOD4 : Frequency converter operation MOD5 : Encoder (AWG) + Low mechanical limit switch (NC) for standard installation MOD6 : Encoder (AWG) + Low mechanical limit switch (NC) in case of special mounting with left rotating field Please note : MOD5 and MOD6 (optional) : Additional external mechanical limit switch.	A (auto-adaptative) MOD1 to MOD6	A
AUTOHOLD	Choice between pulse mode or manual mode, with and without evaluation of the safety edge (SKS) and cell system (LS). MOD1 : Pulse mode (open/close) with SKS and LS MOD2 : Manual mode (open/close) with SKS and LS MOD3 : Manual mode (closing) with SKS and LS MOD4 : Manual mode (opening) with SKS and LS MOD5 : Manual mode (open/close) without SKS and LS MOD6 : Manual mode (closing) without SKS and LS	MOD1 to MOD6	MOD1
FORCE	Automatic force control (rotational speed)	OFF 1 to 999	10
RESET MSBUS	All assigned MSBUS addresses are reset. After restarting the box, all connected MSBUS devices are re-addressed. Please refer to the user manual of the MSBUS device for more information.	ON OFF	OFF
RESTARTING	The box is restarted when a function is activated.	ON OFF	OFF
FACTORY SETTINGS	The choice of parameters must be reset by a RESET. MOD5 : MTZ S → Drive unit in hold to run operation MOD6 : MTZ FU → MDF-U operation series (integrated ASI) MOD7 : MTZ S → STAW operation series with increased running time MOD8 : MTZ FU → SA operation series with brake MOD9 : MTZ FU → STA operation series MOD14 : MTZ FU → MTZ 05 operation series (400V) MOD99 : MTZ S → Standard MOD10 to MOD98 : Individual settings	MOD5 to MOD14 MOD10 to MOD98 MOD99	MOD8
RESET	Reset the parameters of the box to the factory preset parameters. MOD2 : Reset the parameters of the box to the factory preset parameters MOD3 : Partial Reset 2 (everything except limit switches and recognized limit switch system) MOD4 : Total Reset (everything is reset to factory settings)	OFF MOD2 to MOD4	OFF

Function	Description	Available settings	Factory settings
CODE PN 2	Entry and selection of a PN code for maintenance programming. After entering the code, the 2nd programming level opens : A maintenance can be entered in the SERVICE parameter. The 2nd input level turns off after power off or automatically after 10 minutes. Please note : A modification of the PN code can only be made in the 2nd programming level.	0 to 9999	1111
SERVICE	OFF : Maintenance display inactive Set a maintenance interval. After the set number of cycles has elapsed, a maintenance message (LED / LCD) is issued. If a relay output is programmed with MOD31, the relevant relay switches on (continuous signal). Appears after activation of the 2nd input level on the parameters CODE PN 2.	OFF 0 to 9999	OFF
CONVERT.	Activates or deactivates a connected frequency converter. By connecting a frequency converter to the X18 interface, the box is converted to CS 310 FU. MOD1 : Mode without frequency converter (FU) MOD2 : Mode with frequency converter (FU) MOD3 : Mode with FU (actual ramp times)	MOD1 to MOD3	MOD2
P.BRAKE OPEN*	Sets a negative value before the high limit switch ; Range during which the operator passes at reduced speed (OPEN TEMPOR.) Valid only for the opening direction.	-999 to 0	-250
P.BRAKE CLOSE*	Sets a positive value before the low limit switch ; Range during which the operator switches to reduced speed (CLOSE SLOW) Valid only for the closing direction.	0 to 999	250
P.BRAKE FE2*	Sets a positive value before the low limit switch ; Range during which the operator passes at reduced speed (TEMPOR. MX) If the limit switches are subsequently modified (example : Fine adjustment), the P.BRAKE FE2 will be deactivated (display : A), so it will be necessary to reprogram it. Valid only for the closing direction.	0 to LS high (0 = LS low)	A

* These parameters appear after programming the limit-switches.

SPEED OPEN.	Normal speed during opening	MOT.HZ MIN to MAX	50 Hertz
SPEED CLOSE	Normal speed during closing	MOT.HZ MIN to MAX	50 Hertz
SPEED MX CLOSE	Maximum speed during closing (Option). The parameter appears after programming the P.BRAKE FE2	MOT.HZ MIN to MAX	50 Hertz
OPEN. SLOW	Minimum speed during opening	MOT.HZ MIN to 50 Hertz	25 Hertz
CLOSE SLOW	Minimum speed during closing	MOT.HZ MIN to 50 Hertz	25 Hertz
ACCEL. OPEN.	Acceleration time between start order and SPEED OPEN frequency. Acceleration time between start order and SPEED OPEN frequency.	0.1 to 9.9 secondes	2.0 secondes
ACCEL. CLOSE	Acceleration time between start order and SPEED CLOSE frequency. Valid only for the closing direction.	0.1 to 9.9 secondes	2.0 secondes
TEMPOR. OPENING	Delay time between the opening braking point and the SLOW OPEN frequency. Valid only for the opening direction.	0.1 to 9.9 secondes	2.0 secondes
TEMPOR. CLOSE	Delay time between the closing braking point and the SLOW CLOSE frequency. Valid only for the closing direction.	0.1 to 9.9 secondes	2.0 secondes
ACCEL. MX	Acceleration time between start command and SPEED MX CLOSE frequency. Valid only for the closing direction. The parameter appears after programming the P.BRAKE FE2	0.1 to 5.0 secondes	2.0 secondes
TEMPOR. MX	Delay time between the P.BRAKE FE2 and the SPEED CLOSE frequency. Valid only for the closing direction. The parameter appears after programming the P.BRAKE FE2	0.1 to 5.0 secondes	2.0 secondes

Function	Description	Available settings	Factory settings
ACCEL. SKS	Acceleration time after direction change up to the SPEED OPEN / CLOSE frequency. Valid for both directions and activation of the safety edge.	0.1 to 1 second	0.5 second
TEMPOR. SKS	Delay time after safety edge activation (SKS) and shutter stop. Valid for both directions and activation of the safety edge.	0.1 to 1 second	0.1 second
ACCEL. LB	Acceleration time after direction change up to the SPEED OPEN / CLOSE frequency. Valid for both directions and cell activation.	0.1 to 5.0 seconds	0.5 second
TEMPOR. LB	Delay time after cell activation and shutter stop. Valid for both directions and cell activation.	0.1 to 5.0 seconds	0.5 second
TEMPOR. STOP	Delay time between the stop command or reaching a limit switch and stopping the shutter. Valid for both directions.	0.0 to 5.0 seconds	0.5 second
RESET CONV.	Reset all parameters of the frequency converter to factory settings.	ON OFF	OFF
OPERATOR V	Nominal operator voltage.	100 to 500 Volts	400 Volts
OPERATOR I	Nominal operator current.	1 to 9.9 Amps	
OPERATOR P	Nominal operator power.	100 to 5000 Watts	
OPERATOR PHI	Power factor (cosine Phi) of the operator	0 to 1	
OPERATOR HZ	Nominal operator frequency	10 to 100 Hertz	50 Hertz
OPERATOR RPM	Nominal operator speed	100 to 5000 rpm	
OPERATOR HZ MIN	Minimum value to which the operator frequency can be set.	10 to 50 Hertz	10 Hertz
OPERATOR HZ MAX	Maximum value to which the operator's travel frequency can be set.	50 to 100 Hertz	87 Hertz
T BRAKE	Allows delayed brake release after a start command. Prevents the shutter from sagging when starting from an intermediate position.	0 to 500 milliseconds	50 milliseconds

Comment : Compare the operator parameters with the data on the nameplate.

		R400	R750	R1250
Function	**Available settings**	**Factory settings**		
OPERATOR V	100 to 500 Volts	400 V		
OPERATOR I	1 to 9.9 Amps	4.2 A	7 A	10 A
OPERATOR P	100 to 5000 Watts	1700 W	3000 W	4000 W
OPERATOR PHI	0 to 1	0.71	0.8	0.73
OPERATOR HZ	10 to 100 Hertz	50 Hz		
OPERATOR RPM	100 to 5000 rpm	1350 min^{-1}	1365 min^{-1}	1400 min^{-1}

Function	Description	Available settings	Factory settings
EXPERT MENU	Enabling or disabling the Expert setting. Factory setting (OFF) = Limited number of parameter settings displayed in INPUT mode : - Menu Language - P.INT. OPEN - OPENING TIME - WARNING - CLOSED. FAST - REVERSE OFF - INPUT 1 - AUTOHOLD - P.BRAKE OPEN - P.BRAKE CLOSED - SPEED OPEN - SPEED CLOSE - OPEN. SLOW - CLOSE SLOW. - ACCEL. OPEN. - ACCEL. CLOSE. - TEMPOR. OPEN. - TEMPOR. CLOSE. - OPERATOR V - OPERATOR I - OPERATOR P - OPERATOR PHI - OPERATOR HZ - OPERATOR RPM - EXPERT MENU If this parameter is set to ON, it will be possible to consult and modify all the parameters of the INPUT mode.	ON OFF	OFF
BOOST CONT.	Constant increase of the voltage as a function of the output frequency. At low output frequencies, the effective ohmic resistances of the winding must not be neglected in order to maintain the operator flux. In order to balance possible losses, maintain the load and magnetization ; It is possible to increase the inverter output voltage through this parameter.	0 to 250 Volts	50 Volts
BOOST ACCEL	Causes an increase in voltage during acceleration/deceleration and generates additional torque during each acceleration and braking procedure.	0 to 250 Volts	50 Volts
BOOST START	Voltage rise on start-up. Useful for starting a load. Active after the 1st acceleration procedure, after a run command. Setting too high a starting increase (BOOST START) acts on the converter, which limits the current intensity, the output frequency is then limited to a value lower than the nominal frequency.	0 to 250 Volts	0 Volt

Explanation of relay modes : MOD not used.

1 - Light functions :

MOD	Name	Bottom limit-switch	Top limit-switch	Startup Warning	During door movement
MOD1	Red light 1 ***	On/Off *	Off **	Flashing	On
MOD2	Red light 2 ***	On/Off *	Off **	Flashing	Flashing
MOD3	Red light 3 ***	On/Off *	Off **	On	On
MOD18	Red light 4 ***	Off	Off	Flashing	Off
MOD23	Green light ***	Off	On **	Off	Off
MOD60	Red light 1 ****	On/Off *	Off **	Flashing	On
MOD61	Red light 2 ****	On/Off *	Off **	Flashing	Flashing
MOD62	Green light ****	Off	On **	Off	Off

* According to parameter LIGHTS STANDBY.
** If 2-way traffic control is activated : Depends on whether it's open inside or outside.
*** If 2-way traffic control is activated : Interior light.
**** If 2-way traffic control is enabled : Exterior light.

2 - Position messages :

MOD	Name	Comments
MOD6	Top limit-switch	The relay closes the contact, if the shutter is in the upper end position
MOD7	Bottom limit-switch	The relay closes the contact, if the shutter is in the bottom limit-switch position
MOD8	Top limit-switch position	The relay closes the contact, if the shutter is not in the upper limit-switch position
MOD9	Bottom limit-switch position	The relay closes the contact, if the shutter is not in the bottom limit-switch position
MOD10	Partial opening position	The relay closes the contact if the shutter is in the partially open position
MOD11	Partial closure position	The relay closes the contact, if the shutter is in the partially closed position
MOD12	Partial closing position up to the bottom limit-switch	The relay closes the contact, if the shutter is between the partial closing position and the bottom limit-switch
MOD19	Partial opening position up to top limit-switch	The relay closes the contact, if the shutter is between the partial open position and the upper limit switch

3 - Pulse signals :

MOD	Name	Comments
MOD4	Pulse in order to open from the inside	The relay closes the contact for 1 second, if the shutter receives an open command from the inside. With this pulse, it is possible to control the light, for example.
MOD27	Pulse after having reached the limit-switch	The relay closes the contact for 2 seconds, when the shutter reaches the top limit-switch. With this pulse, it is possible to open the next partition, for example.
MOD40	Pulse in order to open from the outside	The relay closes the contact for 1 second if the shutter receives an open command from outside. With this pulse, it is possible to control the light, for example.

4 - Brake functions (only adjustable on relay) :

MOD	Name	Comments
MOD14	Brake (quiescent current principle)	The brake rectifier switch is controlled by the relay to ensure quicker functioning of the brake. The contact is closed and the brake is therefore released as soon as the shutter moves (quiescent current principle).
MOD15	Brake (working current principle)	The brake rectifier switch is controlled by the relay to ensure quicker functioning of the brake. The contact is open and the brake is therefore released as soon as the shutter moves (operating current principle).
MOD16	Brake (quiescent current principle) activated at high end position	The brake rectifier switch is controlled by the relay to ensure quicker functioning of the brake. The contact is closed and the brake is therefore released as soon as the shutter moves (quiescent current principle). So that the shutter stops smoothly at the upper limit-switch, the contactor is not switched in the top limit-switch position (opening time).

5 - Error messages :

MOD	Name	Comments
MOD5	Fault signal	The relay opens the contact when there is a stop or error command. All the errors in the chapter 'display of faults and solutions' will activate the relay.
MOD17	Safety edge activated	The relay opens the contact when the safety edge is activated. A fault with the safety edge or a fail test is displayed from MOD5.
MOD35	Cells	Converts the signal, into an analog message, at the cell input (X4 between 3 and 4). - Relay open : The cell signal is correct. - Relay closed : Interrupted light beam or defective cells.
MOD39	LED Error	The relay always closes the contact when the internal error LED 2 (red) is lit.

6 - Motion signal :

MOD	Name	Comments
MOD29	The shutter opens	Activated when moving to open.
MOD30	The shutter is closing	Activated during closing movement.
MOD43	The shutter opens and closes	Activated with every move.

7 - Functions for external accessories :

MOD	Name	Comments
MOD13	Magnetic latch function	The relay closes before each movement of the shutter. The relay is open in the standby position. A delay time of 0.5 seconds is set before each shutter movement.
MOD21	Anti-lift safety device test	The relay produces a test signal once the bottom limit-switch has been reached and it waits until the stop circuit is activated in response to the test signal.
MOD22	Activation of radio transmission system 1 and 4 Testing of light curtain 1	The relay produces a test signal once the top limit-switch has been reached and it waits until the safety edge input is activated in response to the test signal.
MOD24	Condenser activation	For each move command, the relay is closed for roughly 1 second. Using this relay, a starter condenser required for an alternative current is activated to ensure the operator starts up safely.
MOD25	Outside lighting function	For each open command, the relay is closed for 2 minutes and it is therefore possible to use it to control the lighting.
MOD26	Radio 2 and 4 transmission system activation	Before each close command, the radio transmission system is activated with a pulse. The activation time must be set in the transmission system. The activation of the system enables delayed closing of roughly 0.5 seconds.
MOD28	Relay disabled	The relay is usually deactivated, the contact is always open.
MOD36	Pneumatic cylinder for wicket door locking (threshold-free door system)	At each opening command, the relay is activated and accosts a pneumatic cylinder which mechanically locks the wicket door. The locking position of the cylinder is consulted on a limit switch. Only after this switch is activated does the door start moving. The relay remains active until the last point is reached.
MOD37	Test of the stop signal on radio transmission system 1 and 3	The relay produces a test signal once the top limit-switch has been reached and it waits until the stop circuit is activated in response to the test signal.
MOD38	Testing of light curtain 2 (8,2 kΩ), connection to input 2 (X4 between 11 and 12)	The relay produces a test signal once the top limit-switch has been reached and it waits an interruption from input 2 in response to the test signal.
MOD41	Radio transmission system activation in opening direction	The relay produces a test signal once the bottom limit-switch has been reached and it waits for an interruption from input 2 as a response to the test signal.

8 - Input-dependent messages :

MOD	Name	Comments
MOD32	Battery operation	Activated during battery operation. Input 2 is bridged (setting MOD5).
MOD33	No battery operation	Activated when mains power is supplied. Input 2 is open (setting MOD5).
MOD34	BMA signal	Switches on when a fire detector is activated. Follows the signal from input 1, in case of MOD 5 to 9 and 13 settings. In this case, input 1 is supplied with a signal from the fire detector box, and opens or closes the shutter to the end position or partial position, depending on the settings.

Explanations of inputs : MOD not used.

1 - Functions of input 1 :

MOD	Name	Comments
MOD1	Partial open button	By pressing the button (input 1), the shutter opens to the partial opening position.
MOD2	Partial opening switch	Closed : All opening orders go to the partial open position. Open : All opening commands go to the high limit-switch.
MOD3	Automatic closing switch	Closed : No automatic closing (stop opening time). Open : Automatic closing activated (if open time > 0).
MOD4	External time (continuous opening)	The door opens as soon as the contact closes and stays in the open position (opening time stopped) until the contact opens. This is followed by automatic closing (if opening time > 0). This function can be interrupted by pressing the close button. The door closes.
MOD5	Switch BMA 3 (partial opening) NO	Control function in case of activated fire detector. Open : Normal function. Closed : Partial opening of the shutter. The position of the partial opening is approached from both directions, regardless of the current shutter position. BUTTON : No function. LS / SKS : The shutter stops and moves freely (when closed), closing again after 5 seconds. STOP : Interruption of the emergency shutdown for the duration of the action.
MOD6	Switch BMA 1 (emergency closing) NO	Control function in case of activated fire detector. Open : Normal function. Closed : Emergency closing of the shutter. BUTTON : No function. LS / SKS : The shutter stops and moves freely, new emergency closing after 5 seconds. STOP : Interruption of the emergency closing for the duration of the action.
MOD7	Switch BMA 1 (emergency closing) NO	Control function in case of activated fire detector. Closed : Normal function. Open : Emergency closing of the shutter. BUTTON : No function. LS / SKS : The shutter stops and moves freely, new emergency closing after 5 seconds. STOP : Interruption of the emergency closing for the duration of the action.
MOD8	Switch BMA 2 (emergency opening) NO	Control function in case of activated fire detector. Open : Normal function. Closed : Emergency opening of the shutter. BUTTON : No function. LS / SKS : No function. STOP : Interruption of the emergency opening for the duration of the action. No automatic shutdown after the BMA signal is turned off.
MOD9	BMA 2 switch (emergency opening) NO	Control function in case of activated fire detector. Closed : Normal function. Open : Emergency opening of the shutter. BUTTON : No function. LS / SKS : No function. STOP : Interruption of the emergency opening for the duration of the action. No automatic shutdown after the BMA signal is turned off.

MOD	Name	Comments
MOD10	Ventilation knob NO (partial closing)	Partial opening of the curtain. By actuating an additional button on input 1, the shutter moves to the partial closing position from both directions, independently of the current shutter position.
MOD11	Automatic close button	1st actuation : No automatic closing, the opening time is stopped 2nd actuation : Automatic closing activated (if opening time > 0) 3rd actuation : No automatic closing, the opening time is stopped …
MOD12	Laser scanner (height recognition)	In combination with input 2 (MOD6). See explanations on entry 2.
MOD13	Switch BMA 3 (partial opening) NO	Control function in case of activated fire detector. Closed : Normal function. Open : Partial opening of the shutter. The position of the partial opening is approached from both directions, regardless of the current shutter position. BUTTON : No function. LS / SKS : The curtain stops and moves freely (when closed), closing again after 5 seconds. STOP : Interruption of the emergency shutdown for the duration of the action.
MOD14	Wicket door lock	Control limit switch for the pneumatic wicket door locking system. The switch must have activated the lock within 10 seconds after an open command, otherwise an error message will appear and the door will stop. This function acts on relay mode 36.
MOD15	Cell 2 NC	When a 2nd cell is connected in the shutter area, this system can be programmed on the P/C FUNC parameter. 2 in INPUT mode. Only cell connection with potential-free NC contact.
MOD16	Warning switch	Closed : Start-up warning and warning are inactive (even if both times > 0). Open : Start-up warning and warning are active (if both times > 0).
MOD17	External pulse button	By pressing the button, the shutter is set in motion or stopped. Operation and direction of movement depend on the setting of the pulse parameter in INPUT mode. If the reverse motion control is activated, this pulse command is processed as an external signal.
MOD18	Collision Sensor (NO)	Interrogation of a collision sensor as NC contact. If the sensor has been actuated once, the shutter can be moved either after pressing the STOP button > 5 seconds or after stopping and then reactivating the power supply.
MOD30	Button for inside opening	By pressing the button, the shutter opens up to the top limit switch. The inner light turns green.
MOD31	External opening button	By pressing the button, the shutter opens up to the top limit switch. The exterior light turns green.
MOD32	Close button	By pressing the button, the shutter closes until the bottom limit switch is pressed. Active when the safety edge and cells 1 are in operation. No function in hold-to-run mode.

2 - Input 2 functions :

MOD	Name	Comments
OFF		Not active
MOD2	Wicket door interrupter (8.2kΩ)	Generally active. Stop in case of discrepancies.
MOD3	Safety edge opening (8.2kΩ)	Safety edge active in opening. Stopping and reversing to the low limit switch by activating the safety edge.
MOD4	Safety edge opening (8.2kΩ)	Safety edge active in opening. Stopping reversing 2 seconds by activating the safety edge.
MOD5	Battery operation (special MDFU) NO	Activated when battery power is supplied. Switching relay MOD32 / MOD33.
MOD6	Radar motion detector (height recognition) NO	The function is connected to input 1 (MOD12 - Laser scanner). The preceding laser scanner identifies the height of the vehicle. The connected radar generates an opening command upon activation. - The laser scanner identifies high vehicles (e.g. trucks) and switches input 1 (MOD12) to ON. The radar registers the vehicle and triggers the movement of the shutter. The shutter is set in motion to reach the top limit-switch. - The laser scanner identifies low vehicles (e.g. cars) and switches input 1 (MOD12) to OFF. The radar registers the vehicle and triggers the movement of the shutter. The shutter is set in motion to reach the partial opening. All other opening orders (on X3, X7, X9 and X13) bring the shutter to the high limit switch. The function of input 1 (MOD12) is then irrelevant.

MOD	Name	Comments
MOD7	Light curtain 2 (PNP)	Identical behavior as light curtain 1 (SKS MOD 4 to 6) - Light strip active in opening. - Stop and reversal when the light curtain is activated. The inversion mode (inversion/release) is adopted.

Diagnosis mode / Error memory :

Display	Meaning	Status
TOP LS	Top limit-switch	OFF : The top limit switch is reached ON : The top limit switch is not reached
BOT LS	Bottom limit switch	OFF : Bottom limit switch is reached ON : Bottom limit switch is not reached
OPEN BUTTON	Box key / Open input	ON : Button is pressed / Input is active OFF : Button is not pressed / Input is not active
CLOSE BUTTON	Box key / Closing input	ON : Button is pressed / Input is active OFF : Button is not pressed / Input is not active
INPUT 1	INPUT 1 (X4 between 9 and 10)	ON : Input 1 is active OFF : Input 1 is not active
INPUT 2	INPUT 2 (X4 between 11 and 12)	ON : Input 2 is active OFF : Input 2 is not active — : Not activated
SKS	Safety edge 1 (DW, 8.2 kΩ or Opto Sensor)	ON : The system is closed OFF : The system has stopped (fault)
SKS 3	Safety edge 3 (8.2 kΩ or opto-sensor)	ON : The system is closed OFF : The system has stopped (fault) — : Not activated
SKS 4	Safety edge 4 (8.2 kΩ or opto-sensor)	ON : The system is closed OFF : The system has stopped (fault) — : Not activated
PULSE	Box key / Pulse (X3 between 7 and 8)	ON : Button is pressed / Input is active OFF : Button is not pressed / Input is not active
TIMER	Weekly timer (plug-in)	ON : The timer is active OFF : The timer is not active
PHOTO CELL.	Flow cells 1 (X4 between 1 and 4)	ON : The cell signal is correct OFF : Interrupted light beam or defective cells
PHOTO CELL. 2	Flow cells 2 Connection to input 1 (X4 between 9 and 10)	ON : The cell signal is correct OFF : Interrupted light beam or defective cells
REAR CHAIN	Safety circuit 1 Shutter emergency stop system	ON : The safety circuit is closed OFF : The safety circuit is interrupted
STOP	Stop button (on the front panel)	ON : The button is not pressed OFF : The button is pressed
CM ROT	Direction of rotating field	RIGHT : Setting for a right-rotating field LEFT : Setting for a left-rotating field
CYCLE	Counter for number of shutter cycles	Display of the current shutter cycles (1 Cycle = 1 Open + 1 Close) Calculations are made when the upper and lower limit-switches are reached.
SERVICE	Operation of the service alarm Setting to SERVICE parameter and PN 2 code	OFF : Maintenance display inactive 0 à 99999 : The maintenance display is active Display of the remaining shutter cycles before the maintenance message.
AWG (ENCODER)	Absolute value encoder position indication	Shutter position value display
CYCLE NUMBER ERROR	The error memory of the case can be consulted with information on frequency and cycles. The list of error messages can be scrolled using the + and - buttons on the LCD display. See chapter : Display of faults and solutions. Deleting the error memory : To activate the INPUT, press the + and - buttons for ≈ 2 seconds. Each error message must be deleted one by one.	The display changes every 2 seconds from : - The qualification of the error, - To the frequency of the problem - And which cycle the error occurred last time. The list shows errors that have already occurred.

Fault display and solutions

LCD screen fault display : MOD not used.

Fault / Message	Cause	Solution
The system does not react.	- Power is off.	- Check the power supply to the operator and the box.
After pressing the open button, the shutter moves to the low limit switch. After pressing the close button, the shutter moves to the upper limit switch.	- The direction of the rotating field is incorrect.	- Reverse the direction of the rotating field.
FAULT – X	- Internal software or hardware error.	- Restart the box.
REAR CHAIN	- The stop circuit is interrupted. **X3 between 1 and 2 :** Emergency stop, electric anti-slack cable breaker. **X6 between 1 and 2 :** Internal on/off. **X11 between 4 and 8 :** AWG drive safety circuit. **X14 between 4 and 8 :** RS485 interface. **X2 between B1 and B2 :** MEC drive safety circuit. **X3 between 3 and 4 :** External stop button. **X7 between 1 and 2 :** Internal stop button.	- Check the safety circuit, locate the interruption and solve the problem.
ERR DURATION MVT	- The programmed movement time has been exceeded.	- Check the shutter path and the duration of the movement. - Reprogram the movement time if necessary.
ERR AWG	- The signal transmission between the encoder and the control box is interrupted or faulty.	- Check the cable/plug connections and change them if necessary.
ERR END OF COUR.	- The shutter is outside the programmed limit switches. - The limit-switches have not yet been programmed.	- Switch the box off and on again using the front disconnecting switch. - Reprogram the limit-switches.
ERR FORCE	- Force control is engaged.	- Check that the shutter is not mechanically obstructed.
OS ROTARY FAULT	- The direction of the rotating field is incorrect.	- Check the rotating field and change it if necessary, see chapter : Adjusting the limit switches (Reversing the direction of rotation).
ERR SKS CLOSE	- Safety edge 1 is not operating correctly when closing (X4 between 5 and 8)	- Check the safety edge and the coiled cable.
ERR SKS OPEN 2	- Safety edge 2 does not work correctly when opening (X4 between 11 and 12) input 2	- Check the safety edge and the coiled cable.
STOP ERROR 2	- Safety circuit 2 is interrupted. Wicket door switch 8.2 kΩ (X4 between 11 and 12) input 2.	- Check wicket door switch.
ERR SKS CLOSE 3	- The safety edge 3 is not operating correctly when closing (X20). Pluggable radio transmission system Radio channel 1.	- Check the safety edge. - Check the Radio transmission system if necessary.
ERR SKS OPEN 3	- The safety edge 3 is not operating correctly when opening (X20). - Pluggable radio transmission system Radio channel 1.	- Check the safety edge. - Check the Radio transmission system if necessary.
STOP ERROR 3	- Safety circuit 3 is interrupted. (X20) Plug-in transmission system Radio channel 1.	- Check the safety circuit. - Check the Radio transmission system if necessary.
ERR SKS CLOSE 4	- The safety edge 4 is not operating correctly when closing (X20). Système de transmission enfichable Radio canal 2.	- Check the safety edge. - Check the Radio transmission system if necessary.
ERR SKS OPEN 4	- The safety edge 4 is not operating correctly when opening (X20). Pluggable Radio Channel 2 transmission system.	- Check the safety edge. - Check the Radio transmission system if necessary.
STOP ERROR 4	- Safety circuit 4 is interrupted (X20). Plug-in transmission system Radio channel 2.	- Check the safety circuit. - Check the Radio transmission system if necessary.

Fault / Message	Cause	Solution
ERR T SKS	- The connected pneumatic safety edge test was not successful. - Test of radio transmission system 1 to 4, failed.	- Check the DW switch, the coiled cable and the rubber profile. - Check the POINT DW setting. - Check the radio transmission system. - Check the MOD relay set for the transmission system, see chapter: **7** - Functions for external accessories.
ERR PHOTO/C	- The connected cell has a permanent failure (X4 between 1 and 4)	- Check the cell (operation/direction). - Check the wiring.
ERR PHOTO/C 2	- The connected cell has a permanent failure (X4 between 9 and 10) input 1.	- Check the cell (operation/direction). - Check the wiring.
P/C SHOCK ERR	- The bifilar cell test failed.	- Check the cell (operation/direction). - Check the wiring.
STOP TEST ERROR	- The wicket door switch test (8.2 kΩ) failed. Input 2.	- Check wicket door switch.
ANTI-LIFT ERR	- The anti-lift test failed. Relay MOD21.	- Check the cell (operation/direction). - Check the wiring.
CYLINDER ERROR	- The limit switch for wicket door locking without threshold has not been activated within 10 seconds after the opening command.	- Check the cylinder limit switch.
ERR MSBUS	- The communication between the box and the connected MS-BUS module is interrupted.	- Check the cable/plug connections and change them if necessary.
ERR CONVERT.	Communication error. - The communication between the frequency converter and the box is disturbed. - The bridge (F) between DIC and 0V is absent.	- Check the communication line (C), the connections to the box on the frequency converter. - Place the bridge (F) between DIC and 0V (if frequency converter type V20). - Confirm with STOP.
ERR CONVERT. 1	Overcurrent. - The power of the operator does not match the power of the converter. - Short circuit in the operator cable. - Earth fault.	- Check the operator/converter power. - Check operator/operator cable for short circuit or earth fault. - Compare the set operator parameters with the data on the nameplate. - Check the ease of operation of the shutter. - Confirm with STOP.
ERR CONVERT. 2	Power surge. - Mains voltage too high. - The operator runs in generator mode for too quick a stop or an active load that drives the operator.	- Check the power supply to the operator and the box. - Confirm with STOP.
ERR CONVERT. 3	Undervoltage. - Mains voltage too low. - Loss of mains voltage.	- Check the power supply to the operator and the box. - Check the strength of all connections. - Confirm with STOP.
ERR CONVERT. 4	Converter superheat. - Converter overload. - Ambient temperature too high.	- Check the operator/converter power. - Compare the set operator parameters with the data on the nameplate. - Check the running time. - Check the ease of operation of the shutter. - Confirm with STOP.
ERR CONVERT. 5	I2T converter. - Converter overload. - The power of the operator does not match the power of the converter. - Stress cycle too high.	- Check the operator/converter power. - Compare the set operator parameters with the data on the nameplate. - Check the stress cycle.
ERR CONVERT. 11	Operator overheating I2.T. - Operator overload.	- Check the ease of operation of the shutter. - Confirm with STOP.
ERR CONVERT. 51	Internal error.	- Contact the after-sales service.
ERR CONVERT. 52	Internal error.	- Contact the after-sales service.
ERR CONVERT. 60	Internal error.	- Contact the after-sales service.
ERR CONVERT. 72	Internal error.	- Contact the after-sales service.
ERR CONVERT. 85	Internal error. - External error for a command via the terminals.	- Check the connection terminals on the converter (communication line D). - Confirm with STOP.

In the event of other faults / fault messages, please contact customer service.

Please note : After having solved the cause of the failure, the box must be switched off and restarted in the case of the following errors (menu INPUT → parameter RESTART → ON) :

- OS ROTARY FAULT
- ERR DURATION MVT
- ERR END OF COUR.

LED fault display :

- LED H4 (green, base plate)

Fault / Message	LED display	Comments
No operating voltage	Off	No supply voltage available

- LED H6 (rouge, platine-support)

Fault / Message	LED display	Comments
REAR CHAIN	1 flashing	The stop chain must be closed. - Check the safety circuit, locate the interruption and resolve the problem.
ERR AWG	2 flashing	The signal transmission between the encoder and the box is interrupted or faulty. - Check the cable/plug connections and change them if necessary.
ERR END OF COUR.	3 flashing	The shutter is outside the programmed limit switches or they are not yet programmed. - Switch the box off and on again using the front disconnecting switch. - Program the limit-switches.
OS ROTARY FAULT	4 flashing	- The rotating field is incorrect. - Check the rotation field and modify if necessary, see chapter : Adjusting the limit switches (Reversing the direction of rotation).
ERR FORCE	5 flashing	The force control is activated. - Check that the shutter is not mechanically obstructed.
ERR DURATION MVT	6 flashing	- The programmed movement time has been exceeded. - Check the shutter path and the duration of the movement. - Reprogram the movement time.
ERR CONVERT.	7 flashing	- The communication between the frequency converter and the box is interrupted or disturbed. - Check data cable (D) and connections. - Confirm with STOP.
ERR MSBUS	9 flashing	- Communication error between the box and the connected MS-BUS terminal. - Check the cable/plug connections and change them if necessary.
ERR SKS	Permanent light Operation by hold-to-run only.	Safety edge faulty in opening or closing. - Check the safety edge and the spiral cable, and check the radio transmission system if necessary.
ERR PHOTO/C	Permanent light Operation by hold-to-run only in closing.	- The connected cell has a permanent failure. - Check the cell (operation/orientation). - Check the wiring.

In case of operator malfunction

Most importantly, never put the operator into continuous operation by directly activating the power contactors

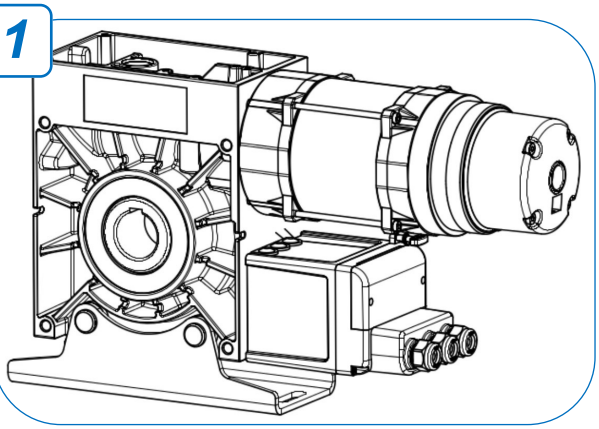
Triple-phase operator : Check the 400V voltage between each phase.
Check the 230V voltage between phase and neutral.

Check that the emergency operation control is not activated.

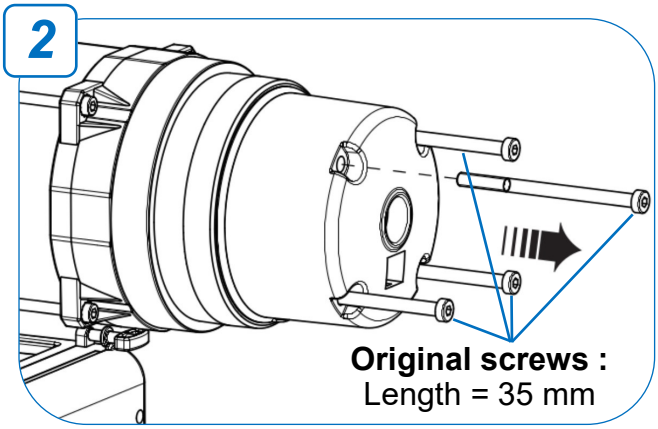
Mounting the winch on R400 operator (option)

- To fix the hoist in place, it is essential to use the 4 screws provided with the hoist (Length = 35 mm) instead of the 4 original screws (Length = 35 mm).
- Do not use an electric screwdriver to tighten the screws, as this might damage the operator.

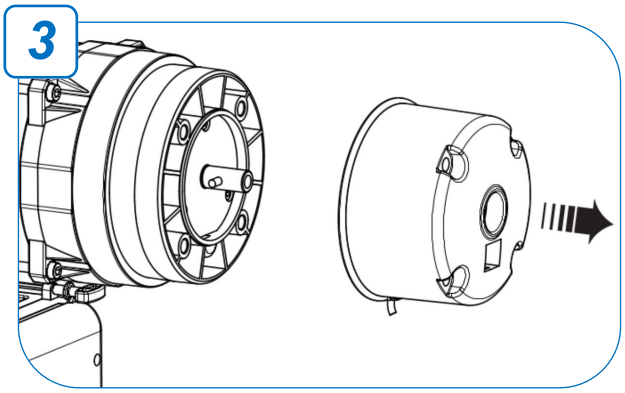
1



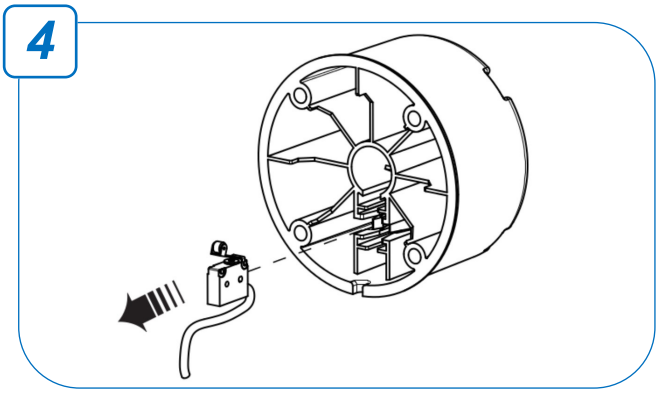
2



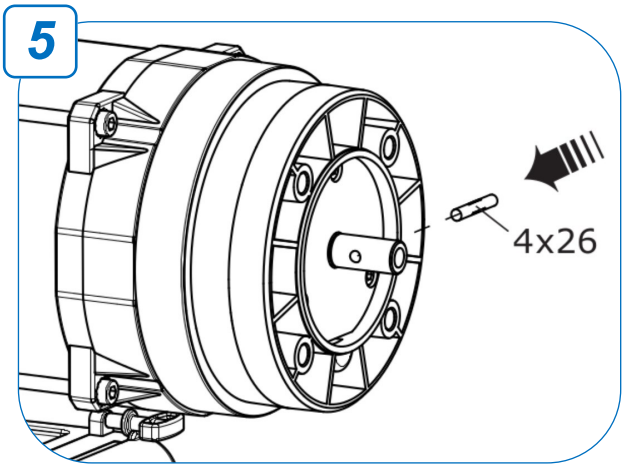
3



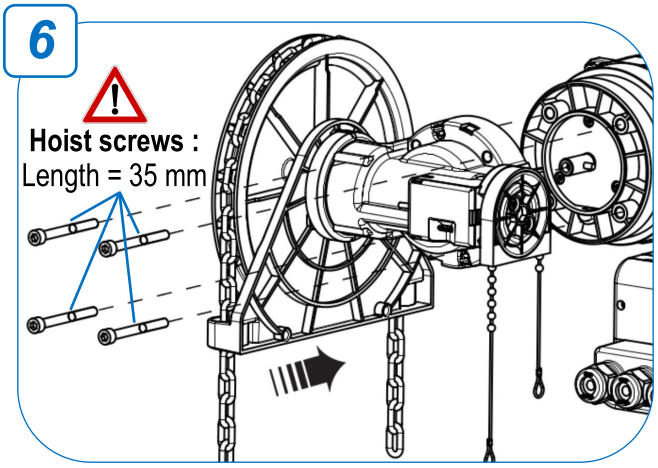
4



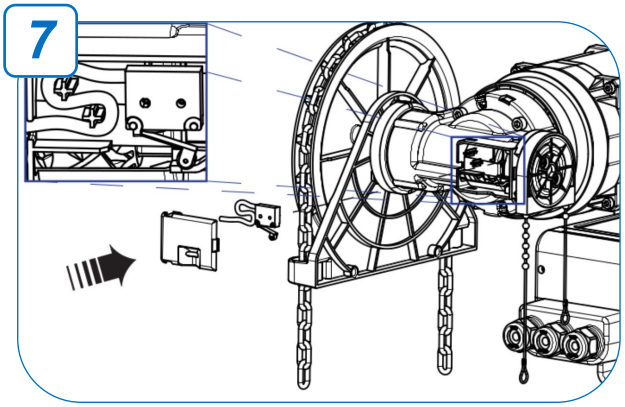
5



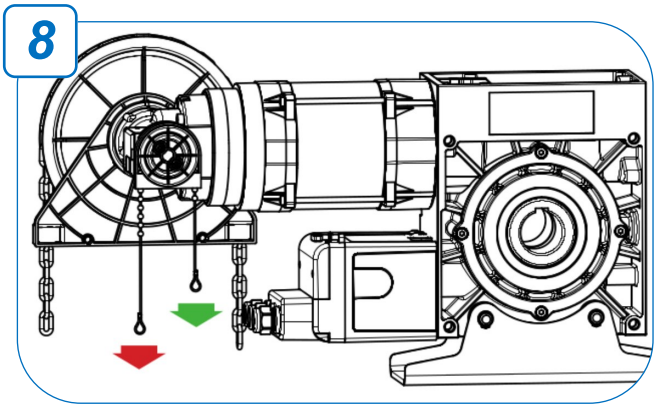
6



7



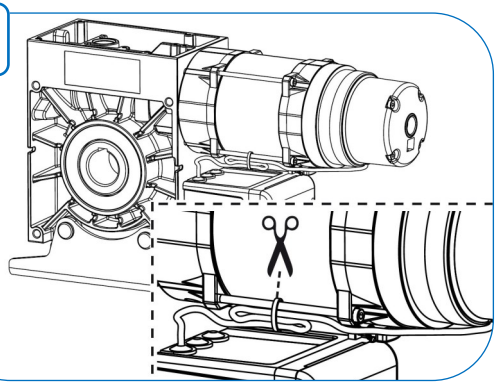
8



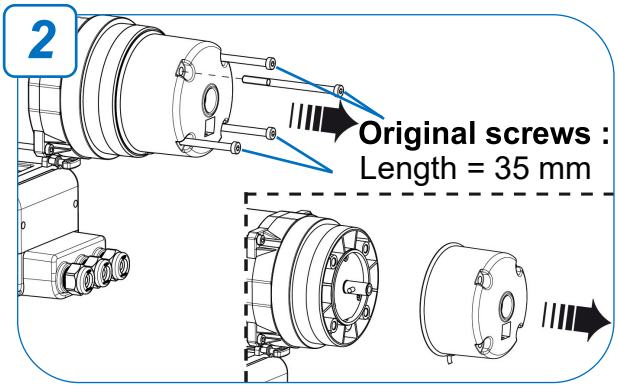
Mounting the winch on R750 operator (option)

- To fix the hoist in place, it is essential to use the 4 screws provided with the hoist (Length = 50 mm) instead of the 4 original screws (Length = 35 mm).
- Do not use an electric screwdriver to tighten the screws, as this might damage the operator.

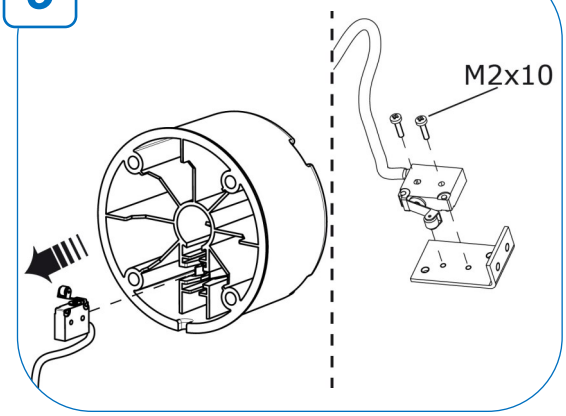
1



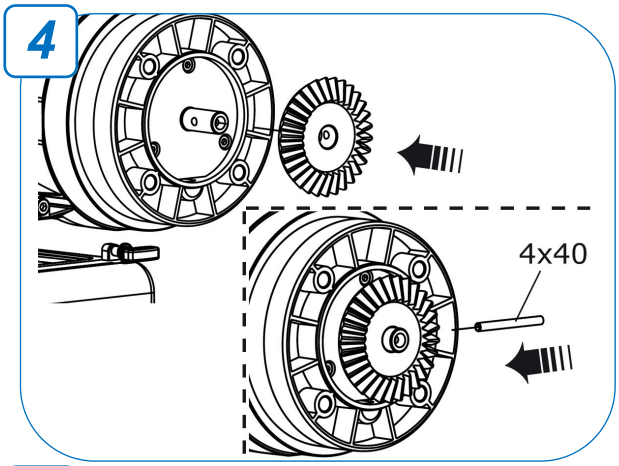
2



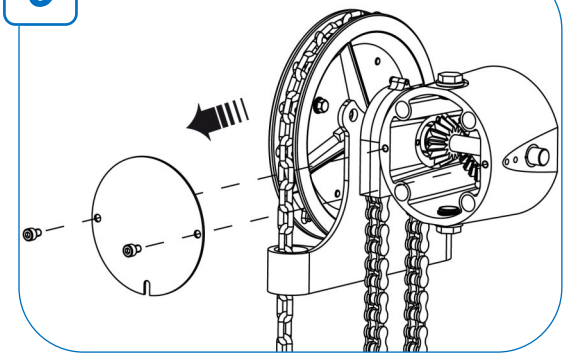
3



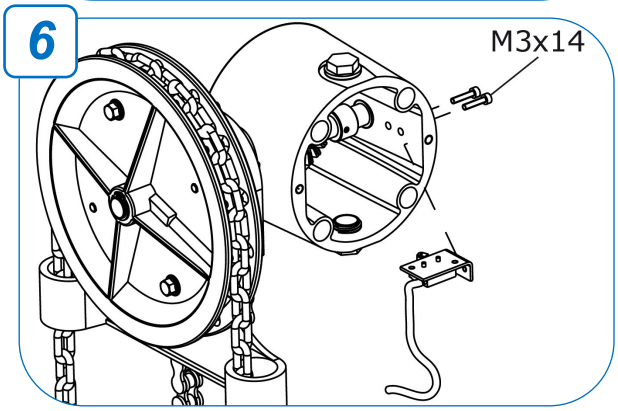
4



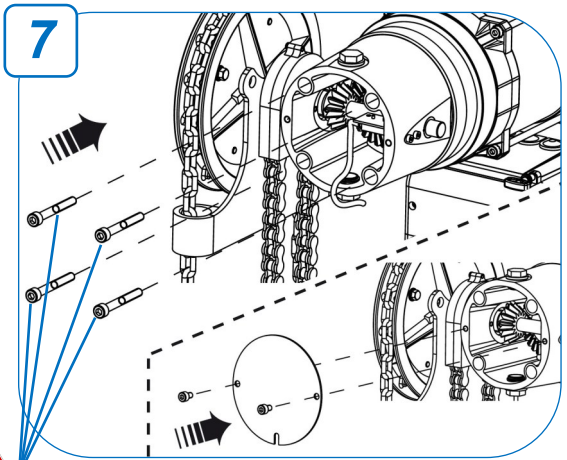
5



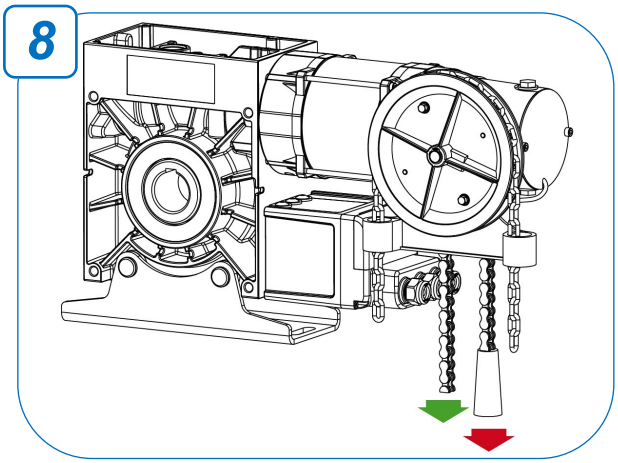
6



7



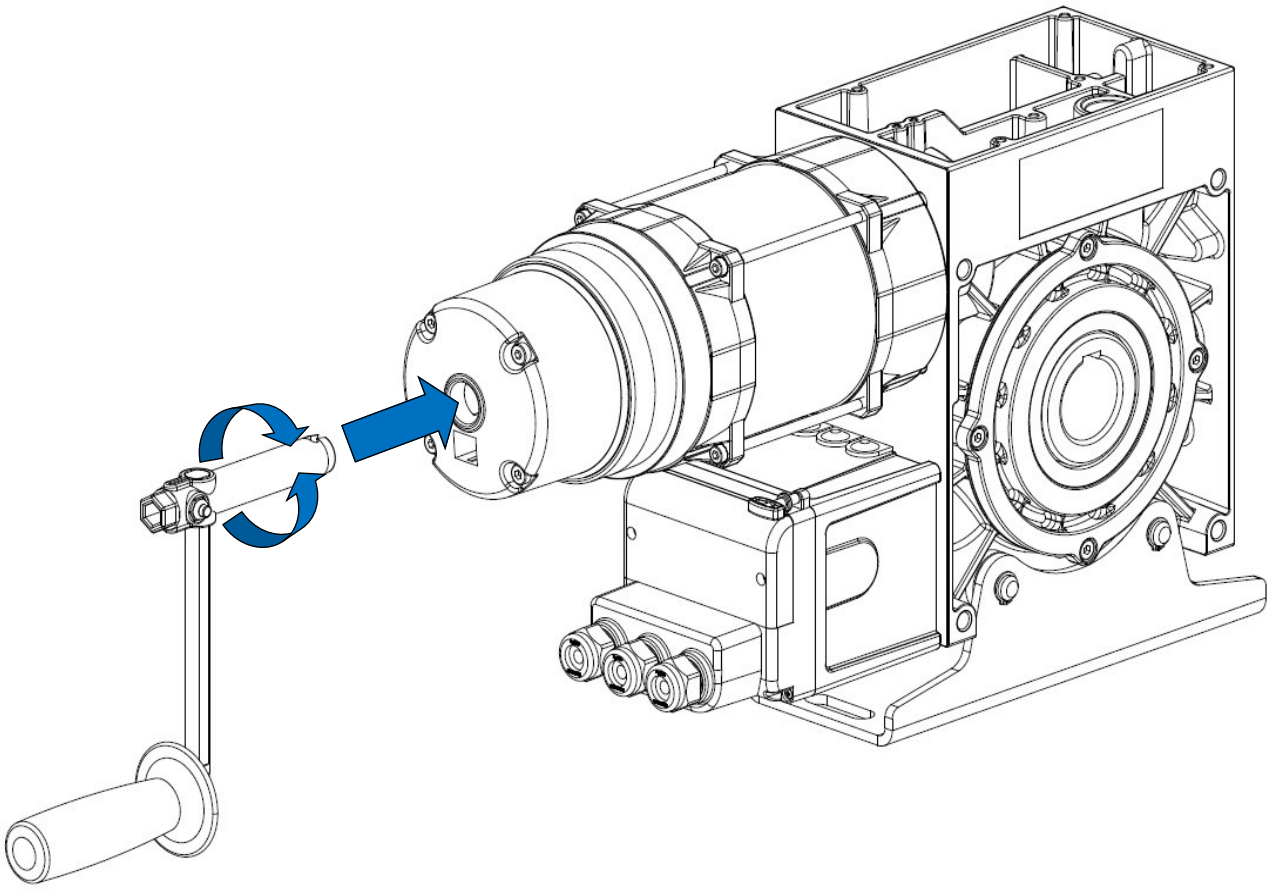
8



Hoist screws : Length = 50 mm

to detach and display next to the fence element

Emergency operation by winch (option)



1- Insert the crank into the operator as far as the stop (the operator power supply is cut off and the door cannot operate electrically).

2- Turn the crank in one direction to open the door and in the other direction to close it.

3- Once repairs are completed, remove the crank (the operator power is reactivated and the door can operate electronically).

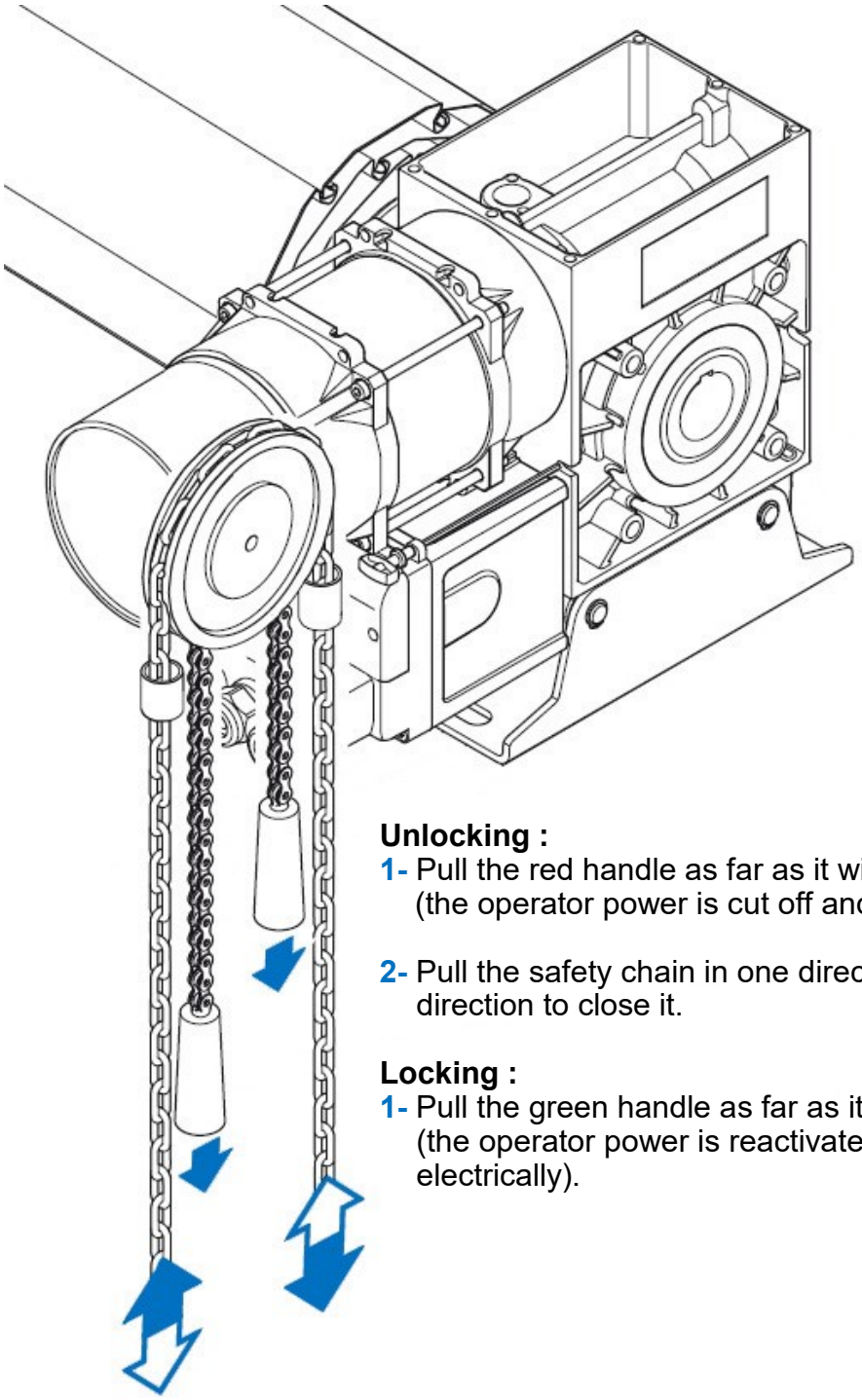
Never pull the operator brake when repairing the operator or when it is in operation.

Technical assistance contact

(Installer's stamp)

to detach and display next to the fence element

Emergency operation by winch (option)



Unlocking :

1- Pull the red handle as far as it will go.
(the operator power is cut off and the door cannot operate electrically).

2- Pull the safety chain in one direction to open the door and in the other direction to close it.

Locking :

1- Pull the green handle as far as it will go.
(the operator power is reactivated and the door can operate electrically).

Never pull the operator brake when repairing the operator or when it is in operation.