

Connection and programming manual

N°1432

04/21

Murax P110 Shutters & Dentel Grille

CS 300 Box for E400 - E750 operator



(Document reserved for installers)

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Equipment required for installation

- | | |
|-------------------|--------------------|
| - Spirit level | - Screwdriver |
| - Tape meter (5m) | - Percussion drill |

Installation instructions



WARNING !

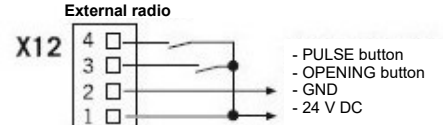
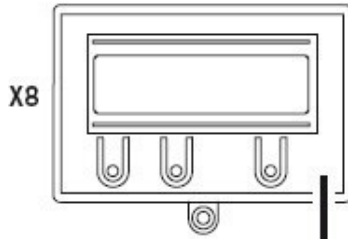
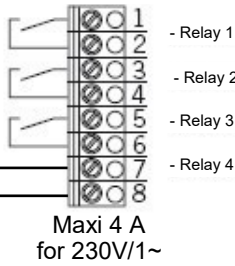


**To reduce the risks, read the following instructions carefully before installation.
Pay close attention to all indications in the text.
Failure to follow all the elements of these instructions in all respects may compromise
the correct operation of the system, result in unsafe conditions and invalidate the guarantee
of correct operation of the product.**

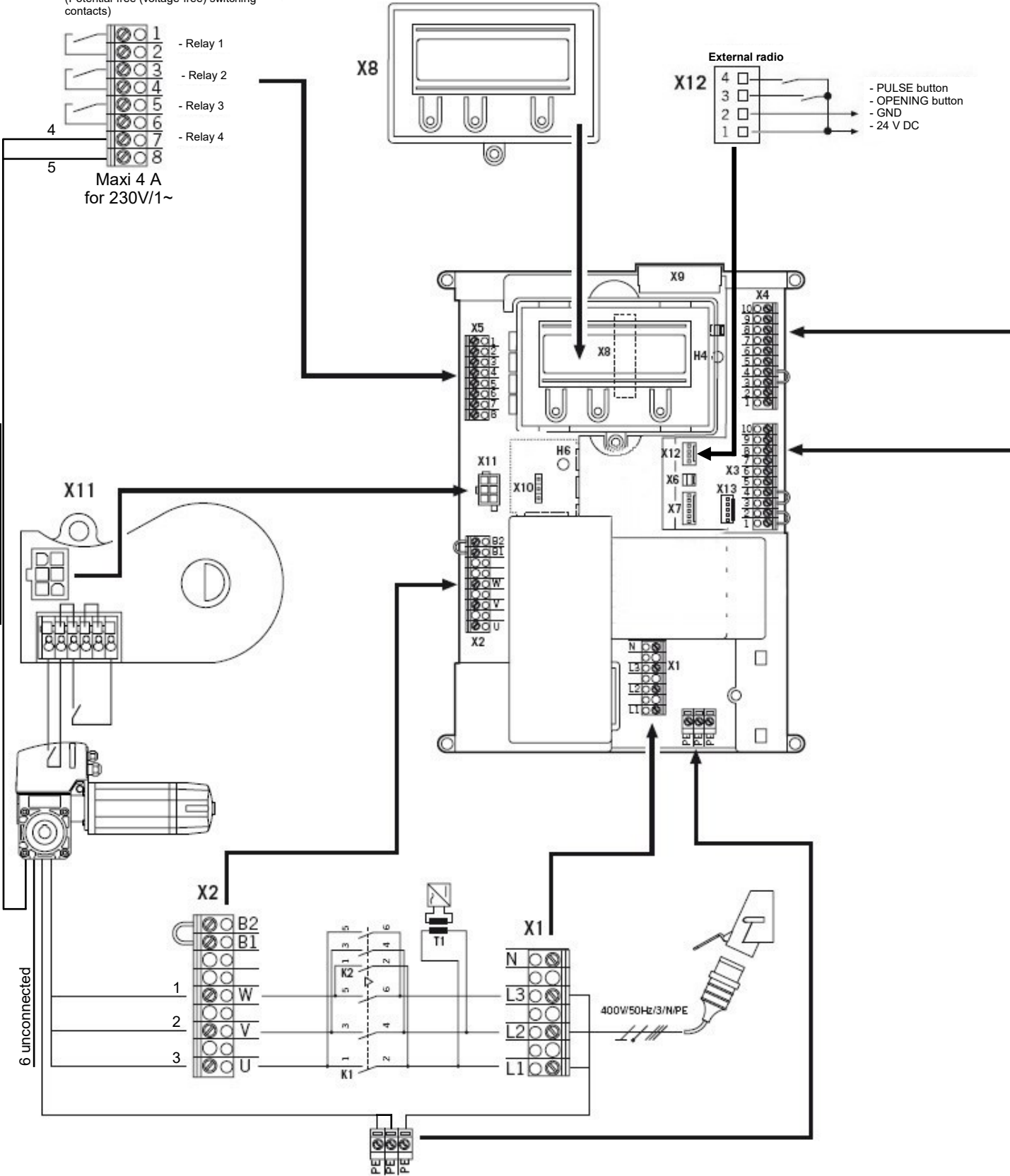
- * The device described in this booklet must only be used for the purpose for which it was expressly designed, namely : Control system for shutter and grille (as defined in 13241-1).
- * The entire installation must be carried out professionally and, in particular, in accordance with the directives :
 - 89/336/ECC Electromagnetic Directive
 - 73/23/ECC Low Voltage Directive
 - 98/37/ECC 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.
- * Misuse of the products or their use for a purpose other than that intended and/or recommended has not been tested by the manufacturer. Therefore, 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.

Connecting the CS 300 box

X5 Terminal strip
(Potential-free (voltage-free) switching contacts)

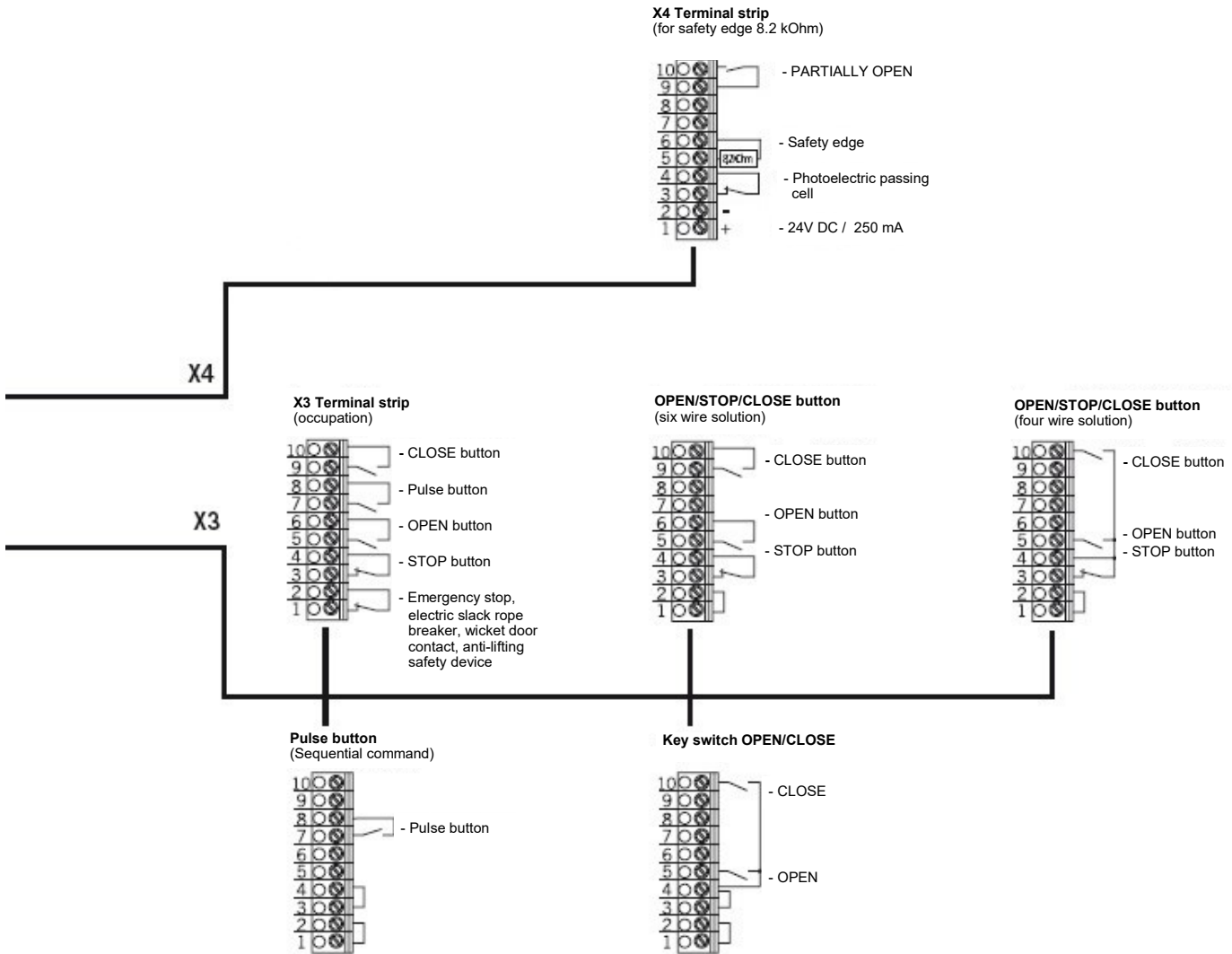


If E750 operator (break)

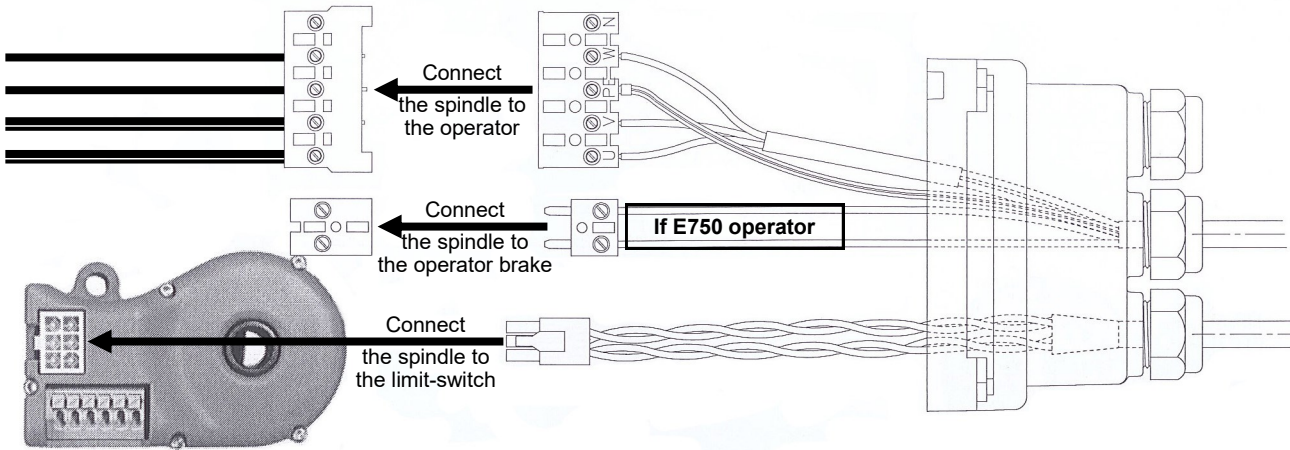


⚠ Neutral mandatory, if lights are connected.

Ensure the power line is protected using an upstream differential circuit-breaker.
 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.



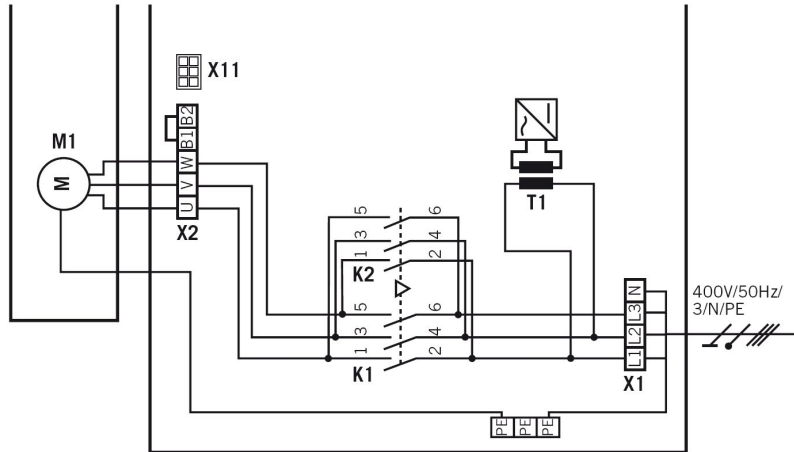
Connecting the operator



Putting into operation

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

Connection of operator E400/E750 to sector 400V+N Tri



Selecting a language

- Display upon :**
- | | | |
|------------|------|--------------|
| JUSTIERUNG | 5235 | (ADJUSTMENT) |
|------------|------|--------------|
- 1- Hold down **P** > for **1s** →

EINGABE		(INPUT)
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 - 2- Hold down **+** and **-** for > **2s** →

EINGABE		(INPUT)
DEUTSCH		(GERMAN)
 - 3- Hold down **P** until the light flashes →

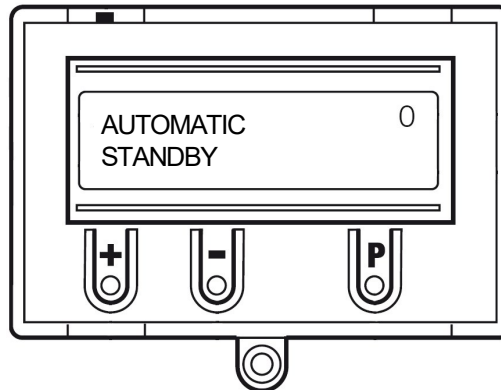
EINGABE		(INPUT)
DEUTSCH	(flashes)_	(GERMAN)
 - 4- Hold down **+** until the desired language is selected →

INPUT		(flashes)_
ENGLISH		
 - 5- Hold down **P** to confirm the language →

INPUT		
ENGLISH		
 - 6- Return to **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 end position :**

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



If the door does not rise, change the operator rotation direction by switching the U and V wires on the X2 terminal block.

Record the OPEN limit-switch position, by holding down the **P** button and then, while still holding down **P**, holding down **+** until the following display appears

→ ADJUSTMENT
RECORD UP

- **Setting the bottom end position :**

Move the door to the required CLOSE limit-switch position, by pressing the **-** button.

Record the CLOSE limit-switch position, by holding down the **P** button and then, while still holding down **P**, holding down **-** until the following display appears

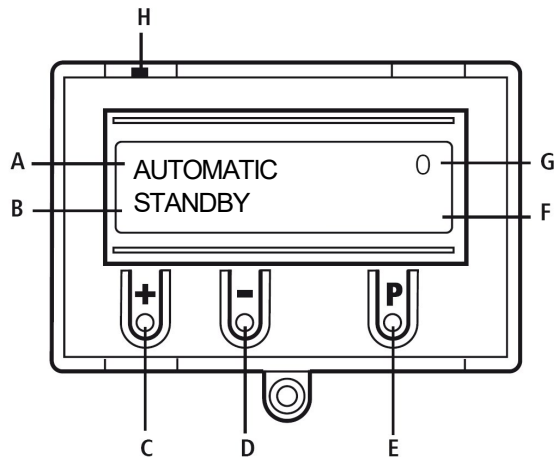
→ ADJUSTMENT
RECORD DOWN

- **The limit-switches are now set.**

- Exit the **ADJUSTMENT** mode, by holding down the **P** button until **AUTOMATIQUE** mode.

Overview 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

The door will operate in this mode.

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

Please note : If in **INPUT** menu, the parameter "**Self-hold**" is set to **MOD2** or **MOD3**, the screen display changes from **AUTOMATIC** to **MANUAL**.

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



In **ADJUSTMENT** mode, there is no stop position when 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 various parameters for shutter operation.

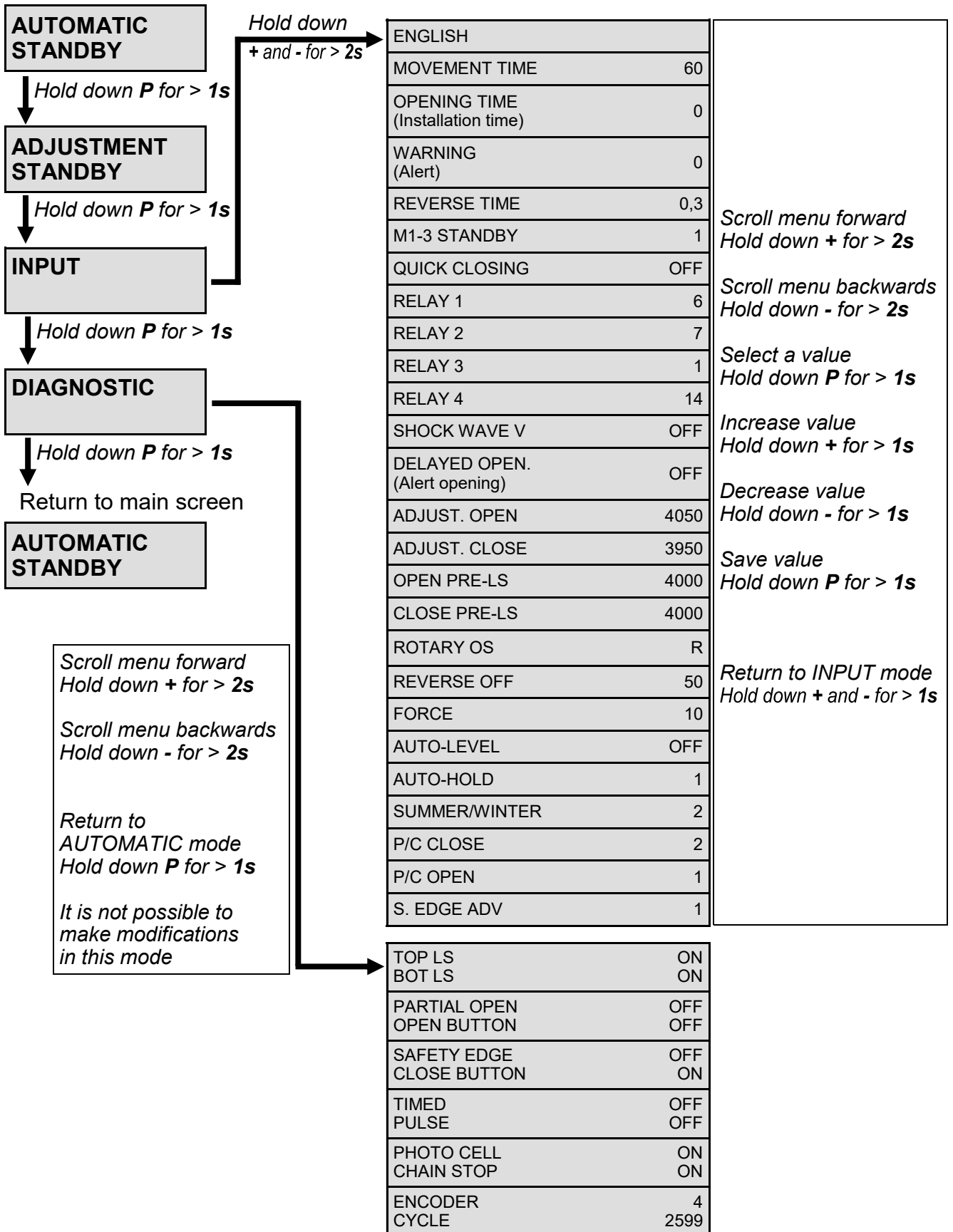
On screen : - Display of the selected parameter.
- The set value / status is displayed.

Description of mode 4 : DIAGNOSTIC = Displays control and safety status.

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

Default parameters table

Mode architecture (standard factory settings)



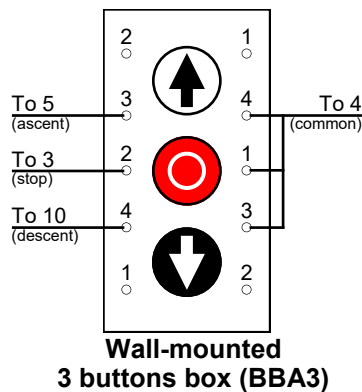
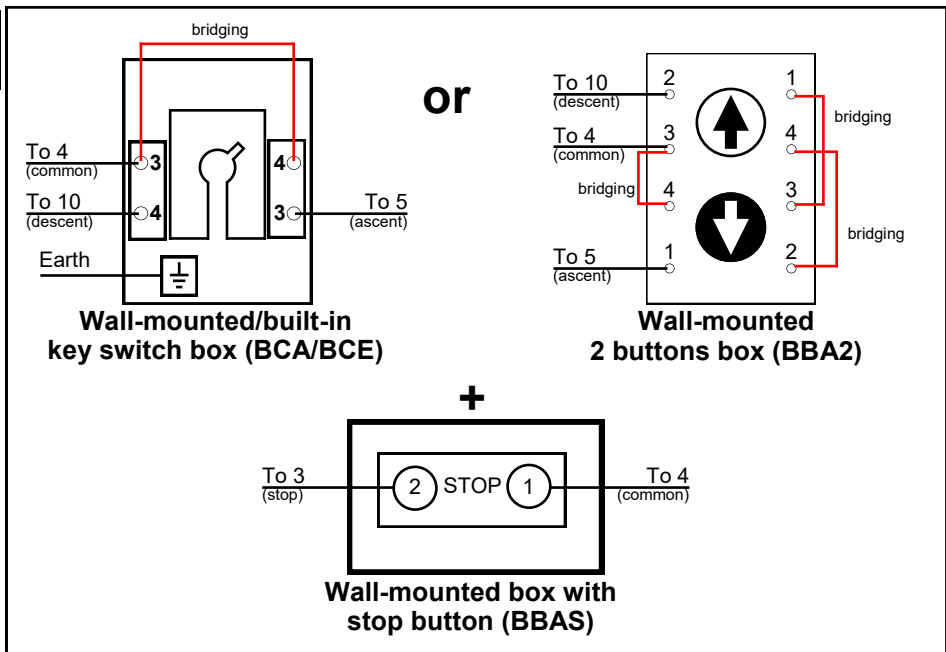
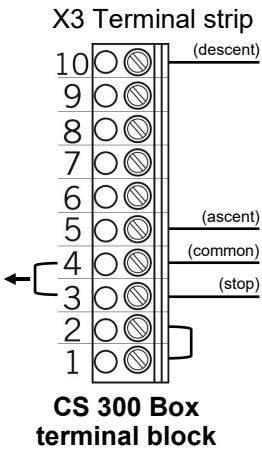
Selecting the operating mode

- 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.

Combined operation Pulse ascent - Sustained descent

- Connection of the controls :

Remove the bridge between 3 and 4



- Parameters to be modified for combined operation : (Refer to the parameter table for parameter functions)

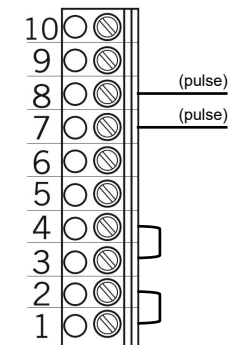
AUTO-HOLD	Mod3	Combined operation
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Pulse operation

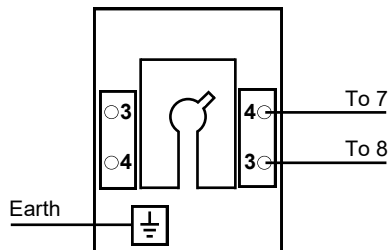
Pulse Ascent/Descent

- Connection of the controls :

X3 Terminal strip

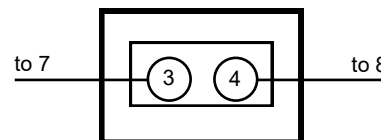


CS 300 Box terminal block



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

or



Wall-mounted button box (BBA)

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

- Check : (Refer to the parameter table for parameter functions)

OPENING TIME	0	If > 0 : automatic operation
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- Parameter to be modified for pulse operation :

(Refer to the parameter table for parameter functions)

MOVEMENT TIME	?	To be defined according to the shutter height, opening time +4s
WARNING	2	Alert before closing (light flashes)
RELAY 1	2	Flashing light
RELAY 2	25	Lighting of area
SHOCK WAVE V	ON	Safety edge with auto-test
DELAYED OPEN	ON	Alert before opening
AUTO-HOLD	1	Pulse operation
P/C CLOSE	2	Photo cells when closing

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 + A2)

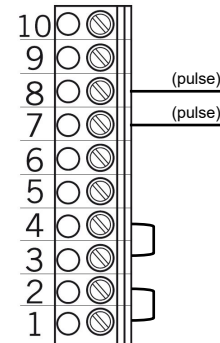


*** Ensure that the mandatory protection levels are in place for automatic operation**

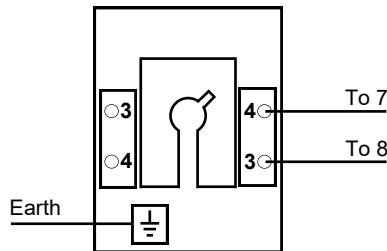


- Connection of the controls :

X3 Terminal strip

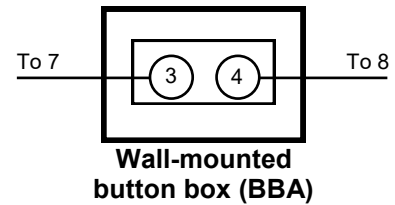


CS 300 Box terminal block



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

or



Wall-mounted button box (BBA)

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

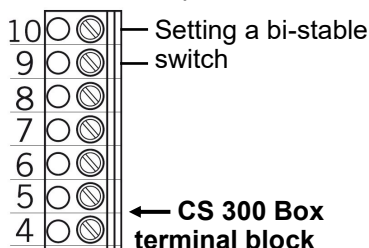
- Parameters to be modified for automatic operation :
(Refer to the parameter table for parameter functions)

MOVEMENT TIME	?	To be defined according to the shutter height, opening time +4s
OPENING TIME	10	If 0 : pulse operation
WARNING	2	Alert before closing (light flashes)
RELAY 1	2	Flashing light
RELAY 2	25	Lighting of area
SHOCK WAVE V	ON	Safety edge with auto-test*
DELAYED OPEN.	ON	Alert before opening
AUTO-HOLD	1	Automatic operation
P/C CLOSE	2	Photo cells when closing*

Partial opening

(Refer to chapter 'Overview of functions' : SUMMER/WINTER)

X4 Terminal strip



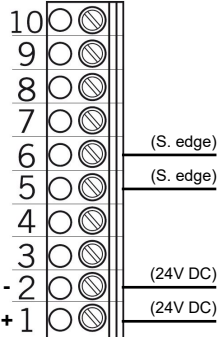
Programming : Open the shutter to the required height, then note the value displayed in **ADJUSTMENT** mode. Next, go to **INPUT** and program the **OPEN PRE-LS** with this value.

OPEN PRE-LS	4000	Settings from 0 - 8190 (example 4000)
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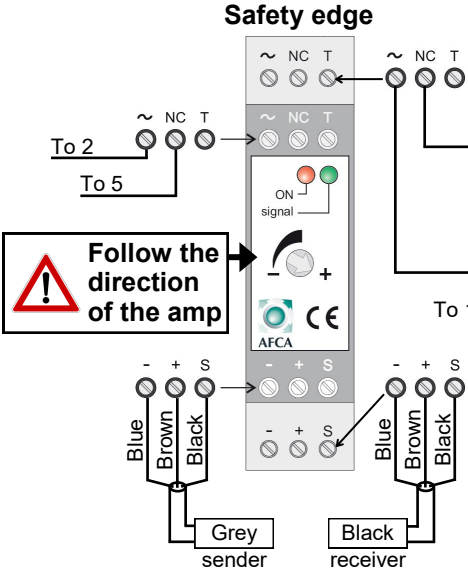
Connecting the safety devices

Bottom safety edge with auto-test

X4 Terminal strip



CS 300 Box terminal block



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

To 6
8,2 kΩ resistor (provided with the box)

X5 Terminal strip



CS 300 Box terminal block

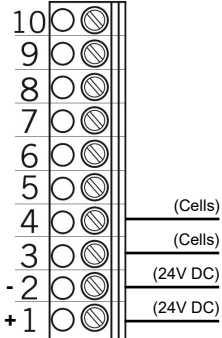
RELAY 3	9	Closing limit switch denied
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Setting the sensitivity :

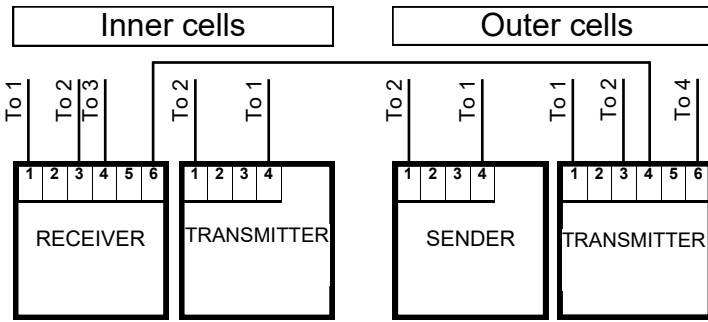
Adjust the potentiometer to minimum, the LED should switch off. Turn up the potentiometer until the LED light switches on, then close the window.

Bottom cells

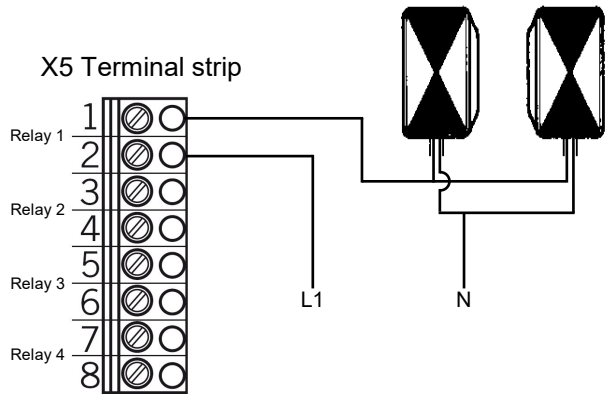
X4 Terminal strip



CS 300 Box terminal block



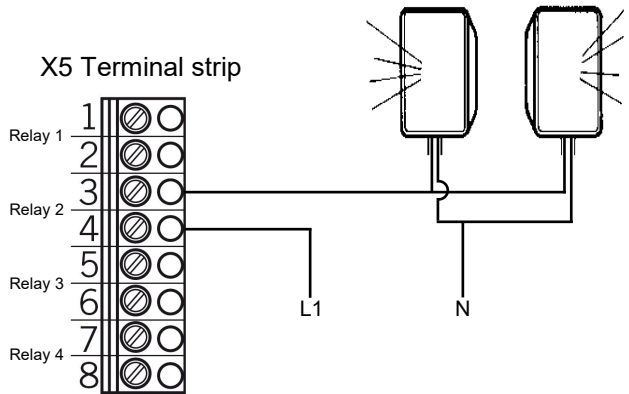
Orange flashing lights (option) 230V - MAXI 4 A



CS 300 Box terminal block

RELAY 1	2	Flashing lights
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Illumination lights (option) 230V - MAXI 4 A



CS 300 Box terminal block

RELAY 2	25	Flashing lights
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Overview of functions

AUTOMATIC mode :

Display		Description
Automatic opening		The door moves to the open limit-switch position*
Automatic closing		The door moves to the close limit-switch position
Automatic standby	O	The door is in the open limit-switch position
Automatic standby	o	The door is in the partial opening position (primary limit-switch - at the top)
Automatic standby	U	The door is in the close limit-switch position
Automatic standby	u	The door is in the partial closing position (primary limit-switch - at the bottom)
Automatic standby	r	The door is in the reverse movement disconnection position

Please note : If the "Auto-hold" parameter is set on **MOD2** or **MOD3** in **INPUT** mode, the screen display will change from **AUTOMATIC** to **MANUAL** mode.

Display		Description
Manual mode Raised manual		The door moves to the open limit-switch position*
Manual mode Lowered manual		The door moves to the close limit-switch position
Manual mode Standby		The door is in the intermediate position

* While the door is opening, the applied force at that time will be displayed.

INPUT mode :

Function	Description	Available settings	Factory settings
DEUTSCH	Selecting a language	DEUTSCH ENGLISH FRANCAIS ESPAGNOL NEDERLANDS POLSKI CESKY ITALIANO	DEUTSCH
OPERATING TIME	Checking the maximum opening and closing time. The movement time specified must be slightly longer than the actual movement time of the door.	1 - 250 Seconds	60 Seconds
OPEN TIME	Once the door is fully open, it stops and begins closing after a time delay. If the time delay is set at > 0, the pulse function only gives commands in the opening direction.	0 - 600 Seconds	0 = Automatic closing off
WARNING	The red light flashes (warning) before the door closes by pulse or automatic operation.	0 - 120 Seconds	0 = Off
REVERSE TIME	Standby time after each change of direction	0,1 - 2,0 Seconds	0,3 Seconds
M1-3 STANDBY	MOD1 : The relay is in standby (door closed) OFF MOD2 : The relay is in standby (door closed) ON	MOD1 MOD2	MOD1
QUICK CLOSING	ON : If the cells are interrupted during opening, the door will stop and close automatically. This function is also active when the time delay = 0 OFF : The door operates normally.	ON OFF	OFF

Function	Description	Available settings	Factory settings
FORCE	During opening, the force will be displayed on the screen. If the force is activated, set a lower value than the lowest value displayed during opening. The greater the difference between these two values, the less sensitive the force control will be. The power control is activated if the set value is > 0.	0 - 999	10
AUTO-LEVEL	ON : Floor adjustment on OFF : Floor adjustment off	ON OFF	OFF
AUTO-LEVEL	MOD1 : Automatic operation MOD2 : Hold to run operation MOD3 : Combined operation	MOD1 - MOD3	MOD1
SUMMER/ WINTER	<p>Connection to the X4 terminal strip (9 and 10)</p> <p>MOD1 : (summer/winter button 1) If the button is pressed, the door will open to the intermediate position (partial opening). <u>Please note</u> : No automatic closing in partial opening.</p> <p>MOD2 : (summer/winter selection switch 1) Closed : All the opening commands operate in partial opening. Open : All the opening commands operate in full opening. <u>Please note</u> : Automatic closing operates from these 2 positions.</p> <p>MOD3 : (summer/winter selection switch 2) Closed : All the opening commands operate in partial opening. Open : All the opening commands operate in full opening. <u>Please note</u> : Automatic closing only operates in partial opening.</p> <p>MOD4 : (summer/winter selection switch 3) Closed : All the opening commands operate in partial opening. Open : All the opening commands operate in full opening. <u>Please note</u> : Automatic closing only operates in full opening.</p> <p>MOD5 : (summer/winter button 2) If the button is pressed, the door will open to the intermediate position (partial opening). <u>Please note</u> : Automatic closing operates in partial opening.</p> <p>MOD6 : Activation of automatic closing. Closed : No automatic closing. Open : Automatic closing activated.</p> <p>MOD7 : External time input. The door opens as soon as the contact closes and stays in the open position until the contact opens. Automatic closing will then operate. This function can be interrupted by pressing the close button. The door closes.</p> <p>MOD8 : Selector switch : Maintaining open/Alarm. Closed : The door opens to the partial opening position and stays there until the contact is closed. Open : Normal function.</p>	MOD1 - MOD8	MOD2
P/C CLOSE (photo cell closing)	Functioning of the cells during closing : MOD1 : Stop by activation MOD2 : Stop and reverse by activation	MOD1 MOD2	MOD2
P/C OPEN (photo cell opening)	Functioning of the cells during opening : MOD1 : The photoelectric cell is deactivated MOD2 : The photoelectric cell between the close end position and the close pre-limit-switch position is activated, the door stops. The red light switches on. The close pre-limit-switch position is automatically put on the close end position + 600.	MOD1 MOD2	MOD1
S. EDGE ADV (safety edge warning)	MOD1 : Deactivated MOD2 : Device activated	MOD1 MOD2	MOD1

Explanation of relay modes :
- Light functions :

MOD	Name	Close limit-switch	Open limit-switch	Warning	Door movement
MOD1	Red light 1	On/Off *	Stop	Flashing	On
MOD2	Red light 2	On/Off *	Stop	Flashing	Flashing
MOD3	Red light 3	On/Off *	Stop	On	On
MOD18	Red light 4	Stop	Stop	Flashing	Stop
MOD23	Green light	Stop	On	Stop	Stop

* According to parameter MOD1-3 STANDBY.

- Position messages :

MOD	Name	Comments
MOD6	Open limit-switch	The relay closes the contact if the door is in the open limit-switch position
MOD7	Close limit-switch	The relay closes the contact if the door is in the close limit-switch position
MOD8	Open limit-switch denied	The relay closes the contact if the door is not in the open limit-switch position
MOD9	Close limit-switch denied	The relay closes the contact if the door is not in the close limit-switch position
MOD10	Primary open limit-switch (partial opening)	The relay closes the contact if the door is in the primary open limit-switch position (partial opening)
MOD11	Primary close limit-switch	The relay closes the contact if the door is in the primary close limit-switch position
MOD12	Primary close limit-switch up to close limit-switch	The relay closes the contact if the door is between the primary close limit-switch position and the close limit-switch position
MOD19	Primary open limit-switch up to open limit-switch	The relay closes the contact if the door is between the primary open limit-switch position (partial opening) and the open limit-switch position

- Pulse signals :

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

- Brake functions :

MOD	Name	Comments
MOD14	Brake	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 door moves (quiescent current brake).
MOD15	Reverse brake	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 door moves (operating current brake).
MOD16	During opening, the brake remains ON	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 door moves (operating current brake). So that the door stops smoothly at the upper limit-switch, the contactor is not switched in the open limit-switch position (opening time).

- Error messages :

MOD	Name	Comments
MOD5	Fault signal	The relay closes 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 device 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.

- Functions for external accessories :

MOD	Name	Comments
MOD13	Magnetic latch function	The relay is open in close limit-switch position. If an open command is then received, the relay closes and stays closed until the close limit-switch is reached once more. If more time is required for opening the magnetic latch, this setting can be changed in the delayed opening and warning parameters.
MOD20	Opto-transmission system activation	Before each close command, the Opto transfer system is activated and remains activated during closing. Closing will be delayed by roughly 0.5 seconds because this system is activated.
MOD21	Anti-lift safety device test	The relay produces a test signal once the close limit-switch has been reached and it waits until the stop circuit is activated in response to the test signal.
MOD22	External safety device test	The relay produces a test signal once the open 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 a single-phase current is activated to ensure the operator starts up safely.
MOD25	Courtyard light 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 transmission system activation	Before each stop 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 close function	The relay remains open.

DIAGNOSTIC mode :

Display	Meaning	Status
TOP LS	Open limit-switch	OFF : Activated ON : Non-activated
BOT LS	Close limit-switch	OFF : Activated ON : Non-activated
OPEN BUTTON	Open button	ON : Activated OFF : Non-activated
PART OPEN	Partial opening button Connection to X4 terminal strip (9 and 10)	ON : Activated OFF : Non-activated
CLOSE BUTTON	Close button	ON : Activated OFF : Non-activated
SAFETY EDGE	Safety edge	ON : The system is closed OFF : The system has stopped (fault)
PULSE	Pulse button	ON : Activated OFF : Non-activated
TIMER	Weekly timer	ON : Activated OFF : Non-activated
PHOTO CELL	Passing photoelectric cell	ON : Closed OFF : Stopped (fault)
STOP CHAIN	Control stop button Operator stop system	ON : Closed OFF : Stopped (fault)
CYCLE	Counter for number of door cycles	Door cycle display
ENCODER	Absolute value encoder	Door position value display

Display of faults and solutions

Fault or fault signal	Cause	Solution
The door does not respond	- Power is off	- Check the power supply to the operator and the box
After pressing the open button, the door moves to the closing end position. After pressing the close button, the door moves to the open end position.	- Rotating magnetic field incorrectly applied	- Check the rotating magnetic field and create a clockwise rotating magnetic field if necessary
STOP	- The stop circuit is interrupted Terminal block X3 (1,2) : Emergency stop, electric anti-slack cable breaker, anti-lift safety device Terminal block X6 (1,2) : Internal on/off interrupter Terminal block X11 (4,8) : Operation safety circuit Terminal block X2 (B1,B2) : Bridge Terminal block X3 (3,4) : External stop button Terminal block X7 (1,2) : Internal stop button	- Check and close the stop circuit
Limit-switch position error	- The door is positioned beyond the limit-switches - The limit-switches have not yet been programmed	- Check that the limit-switches have been programmed and reconfigure the settings if necessary
Movement time error	- The programmed movement time has been exceeded	- Check the door's trajectory - Reprogram the movement time
Safety edge fault	- The safety edge is not operating correctly - The safety edge is activated	- Check the safety edge and the coiled cable - Remove the obstacle that is blocking the door's trajectory
Shock wave V fault (safety edge)	- In close limit-switch position, the DW switch does not activate	- Check the DW switch, the coiled cable and the profile - Check the close-limit switch settings
OS Rotary fault	- The rotating magnetic field has been incorrectly applied to terminal strip X1	- Check that a clockwise rotating magnetic field has been applied
RS485 error	- Communication error between the limit-switch and the box	- Check the cable and the plug connections
FORCE error	- The force control is activated	- Check whether the door moves easily - Reset the force value

Please note : After having rectified the fault, it is necessary to switch the box, once the power is off.

In case of incorrect functioning of the operator

Never tune the operator in forced operation by directly activating the power contractors

Three-phase motor : check the 400V or 230V voltage between each phase.

Check that the emergency operation control is not activated.