Control unit

SALICE

ENGLISH

Motorisation control unit V1.0

1. INTRODUCTION

PLEASE READ THIS DOCUMENT CAREFULLY BEFORE INSTALLING, USING OR SERVICING.

1.1. Provide a copy of these instructions to the end user of the product together with any other information, drawings and documents relating to the motorised system.

1.2. Failure to follow the instructions in this manual may lead to a malfunction of the motorised system with consequent damage to people or property.

2. SCOPE OF APPLICATION

2.1. This unit is to be used in domestic applications only. It is NOT for outdoor use and it is NOT weatherproof.

2.2. Check that the operating temperature is within the range specified in the Table: TECHNICAL SPECIFICATIONS.

2.3. Motorisation system control unit for series mechanisms:

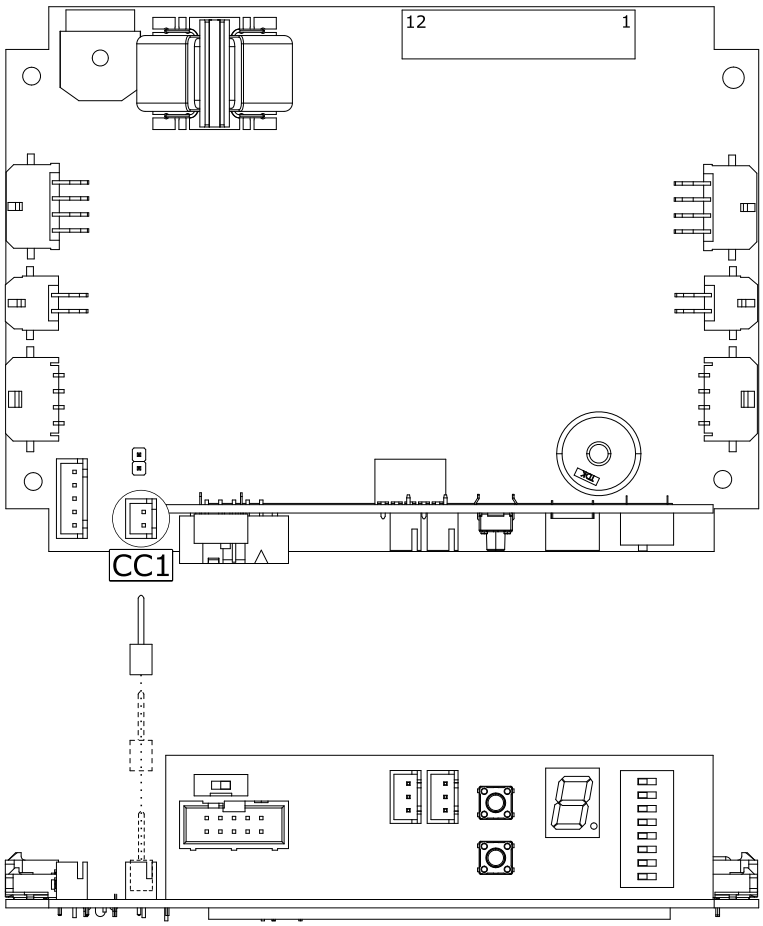
- **Slider M35**: 1 door, 2 doors, Reverso, Step
- **Slider M35TOP**: 1 door, 2 doors, Reverso
- **Slider M50**: 1 door, 2 doors, Reverso, Step
- **Glow+**: 1 door, 2 doors, 3 doors (with 2 control units), Reverso, Step
- **Slider L70**: 1 door, 2 doors, 3 doors (with 2 control units), Reverso, Step
- **Slider M50 Flex**: 2 doors
- **Slider L70 Flex**: 2 doors

3. TECHNICAL SPECIFICATIONS

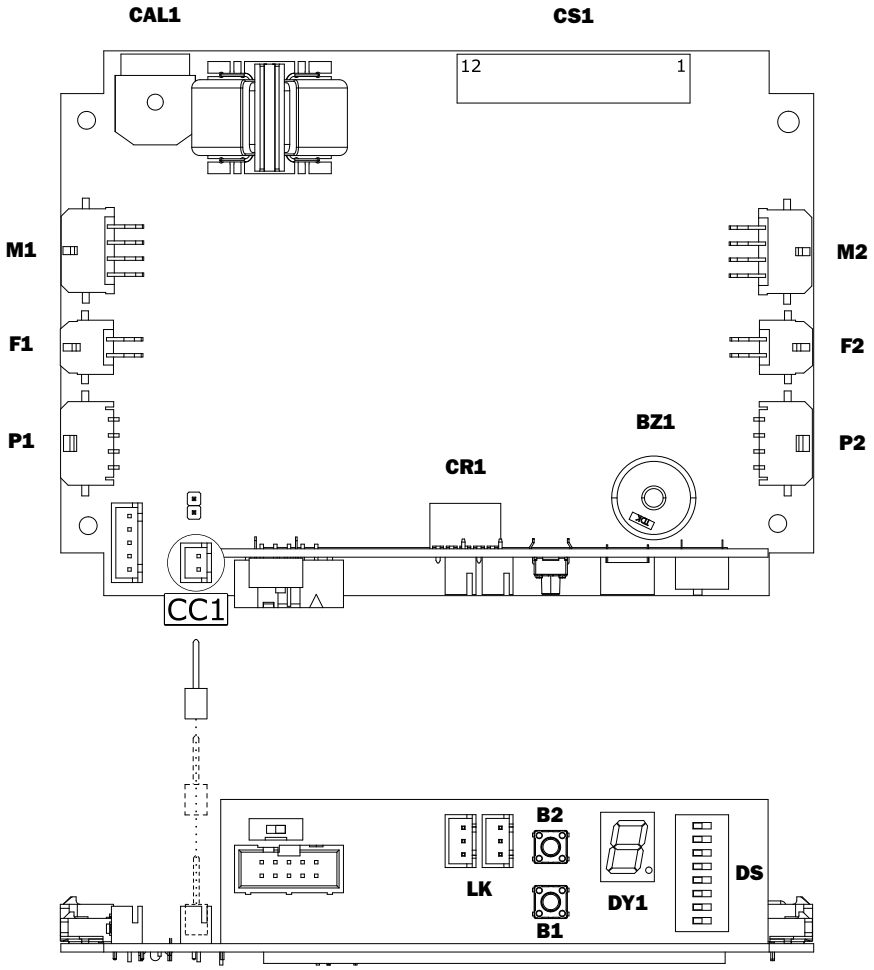
24 Vdc ±10%	Power supply voltage (from dedicated power supply)
5 ADC Max	Maximum absorption
6.3 HV	Prescribed input fuse (anti-surge type)
II	Insulation class (Guaranteed by the power supply)
30 W @ 24 Vdc	Maximum power of the single motor
IP 20	Degree of protection
+5 ÷ +60°C	Operating ambient temperature
30 ÷ 70%	Operating ambient humidity (non-condensing)
-10 ÷ 70°C	Storage ambient temperature
30 ÷ 90%	Storage ambient humidity (non-condensing)
80 VAC ÷ 264 VAC	Power supply input voltage
24 Vdc ±10%	Power supply output voltage

4. PRELIMINARY OPERATIONS OF COPLANAR SLIDER MECHANISMS

If the motorisation system is installed on a coplanar mechanism, the relay module must be inserted into the CC1 input.
To do this, it is necessary to open the box of the control unit by unscrewing the four screws on the cover, with the control unit disconnected from the power supply.
If it has been powered previously, the current must be switched off for at least 30 seconds.
The relay module to be inserted into the CC1 input is attached to the cover of the control module.



4. BOARD LAYOUT



INITIALS	DESCRIPTION
CAL1	24vdc power input connector 5a
M1	Motor connector M1
M2	Motor connector M2
P1	Connector for light button M1
P2	Connector for light button M2
F1	Closed door sensor input M1
F2	Closed door sensor input M2
CS1	Accessory services connector and safety lock 12 clamps
LK	Connector for auxiliary control unit
CC1	Relay module for coplanar function
CR1	Receiver radio module connector
B1	Button for reading version number
B2	Button for reset/set-up
DS	Opening type selector
DY1	7-digit display
BZ1	Audible warning

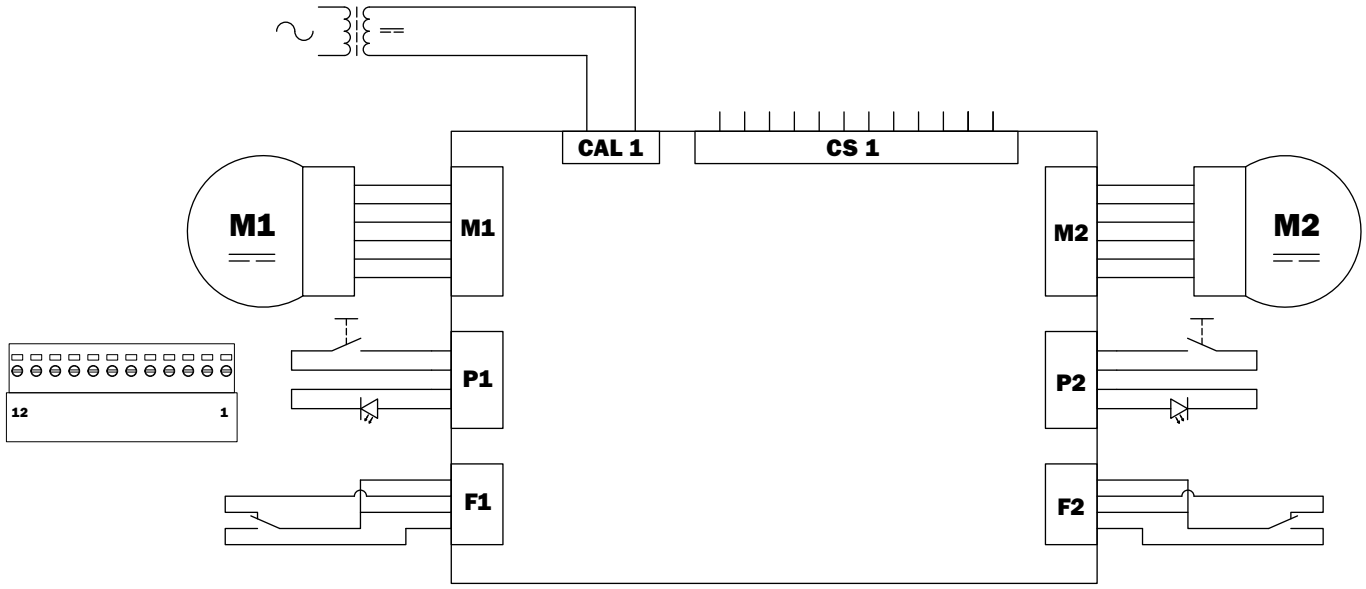
Motorisation control unit V1.0

5.1. CAL1 - Control unit power supply

Only power the control unit at the end of all the assembly and adjustment operations of the mechanism and the cabinet on which it is installed. Insert the connector into the CAL1 input and then insert the power plug into the electrical socket.

5.2. M1-M2-P1-P2-F1-F2 connection (standard) of motors, closed door sensor and buttons (optional)

Make sure that the control unit is not powered, insert the motor connector M1 (see graphic diagram below) into the input M1 and then the motor connector M2 into the input M2.
If the closed door sensor assembly is provided, insert the connector of the closed door sensor of the motor M1 into the input F1 and of the closed door sensor of the motor M2 in the input F2.
The light buttons (optional) connect to inputs P1 and P2.



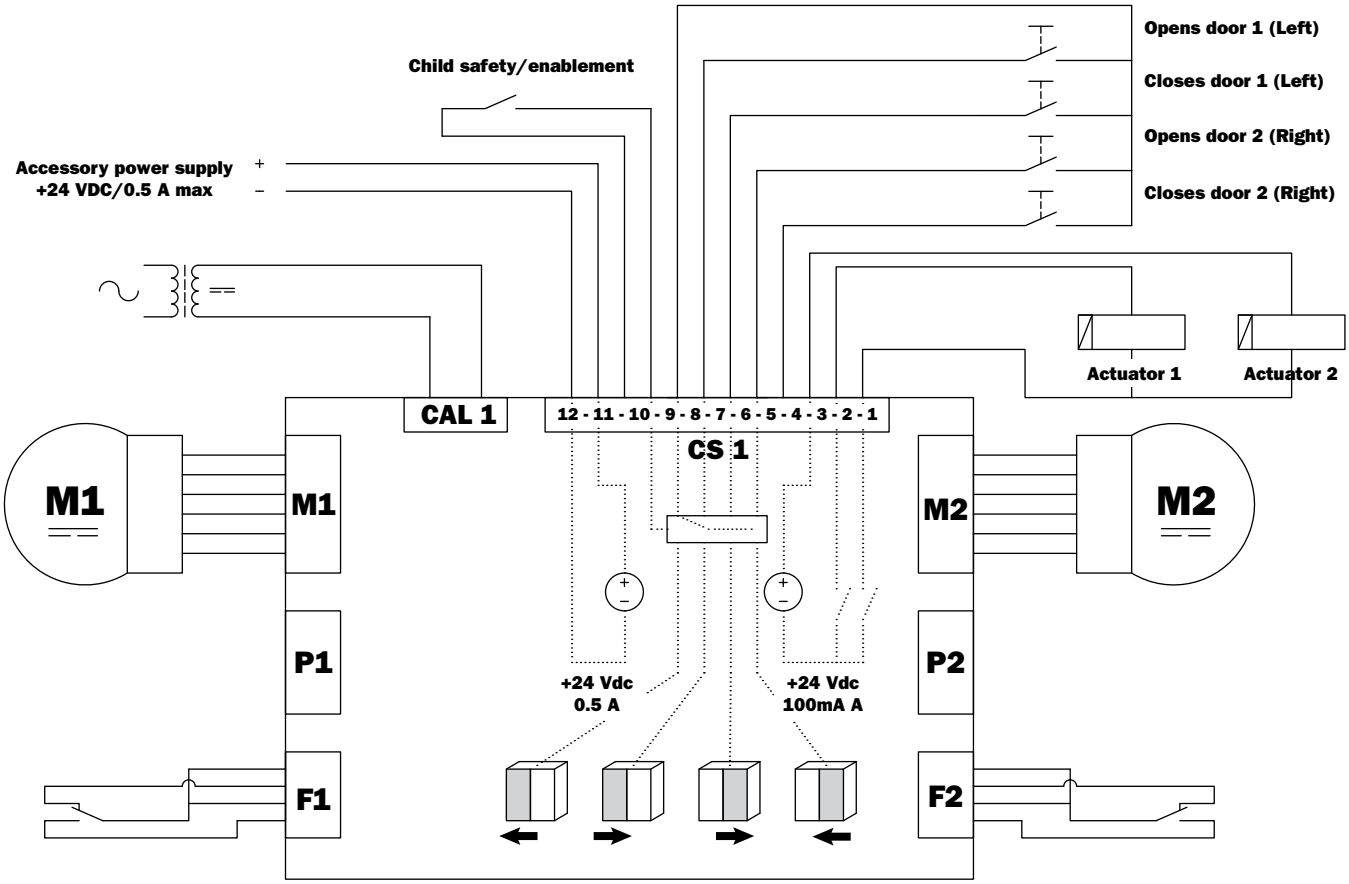
5.3. CS1 - 12 pin service connector

The 12-pin connector allows the connection of a switch for the safety lock, the connection with third-party controls for the control of the mechanism and the connection of auxiliary services such as courtesy lights, TV, etc.

TERMINAL	DESCRIPTION
1	Auxiliary output 2 - 0V (NPN)
2	Auxiliary output 1 - 0V (NPN)
3	Common positive auxiliary outputs 24Vdc 0.5A*
4	Auxiliary input 4
5	Auxiliary input 3
6	Auxiliary input 2
7	Auxiliary input 1
8	Common positive auxiliary inputs 24Vdc 0.5A*
9	General enabling input
10	Common positive enabling input 24Vdc 0.5A*
11	Protected output power supply accessories, positive 24Vdc 0.5A*
12	Protected output power supply accessories, negative 24Vdc 0.5A*

*** Self-restoring fuse – total absorption of outputs 3-8-11 and 12 0.5A**

Connection via 12 pin service connector



Terminals 1-2-3

Relay control outputs for switching on lights, TVs or other electrical devices.
Contacts 1-3 and 2-3 close when the door opens and open when the door closes.
It is not possible to directly control the electrical devices but it is always necessary to interpose a control relay.

Terminals 4-5-6-7-8

Inputs for controlling the movements of the doors with third-party auxiliary devices.
These devices can be home automation or 4-output relays for home controls such as Alexa or Google Home.
Contacts 4-8 (opening) and 5-8 (closing) control the motor M1, while contacts 6-8 (opening) and 7-8 (closing) control the motor M2.
In the case of openings of "Reverso" mechanisms (see Section 9, configuration C9) the functions are reversed.

Terminals 9-10

Inputs arranged for the connection of safety switches (key, magnetic card, etc.) for locking the doors.
By activating the input, it will no longer be possible to open the doors by pushing or with the luminous buttons.
The other radio and auxiliary modes will remain active (clamps 4-8).

Terminals 11-12

Protected power output for electronic devices with a consumption not exceeding 0.4A voltage 24Vdc.

5.4. LK - Connector for RS485 link with auxiliary control unit
Connector to connect a second control unit in the case of control of 3 or 4 doors.

5.5. CC1 - Relay module for coplanar function
The relay module provided inside the control unit must be inserted when the control unit operates a mechanism with coplanar movement (standard or Reverso with any number of doors).

5.6. CR1 - Receiver radio module connector
Connector where to install the radio receiver module supplied with the Radio control kit (optional).

5.7. CD1 - Connector for programming
Connector for programming the board and for the factory settings.

5.8. B1 - Button for reading version number
Button for reading the software version loaded on the control unit.
Keeping the button on the display pressed, the version number and the revision of the same can be read in sequence.

5.9. B2 - Button for reset/set-up
Button to start the self-learning programme.
Press the button for 3-4 seconds.

5.10. DS - Opening type selector
Through the sequence of these micro switches it is possible to select the specific programme for the type of mechanism that the control unit will control. (Read Section 9 for specifications).

5.11. DY1 - 7-digit display
The display shows any errors, operating status or alarms related to the control unit, motors and encoder.
(See Section 13 for details)

5.12. BZ1 - Audible warning
The audible warning device is activated to alert the customer to the status of the control unit in the event of an error or set-up procedures to be activated. For more details read section 13.7.

5.13. FU - Delayed fuse 6.3a (anti surge)

6. CONFIGURATION PROGRAMMING OF THE CONTROL UNIT

6.1. General set-up and installation rules
The control unit software can manage a 1, 2, 3 or 4 door horizontally sliding door cabinet.

For a single or 2- door system, 1 control is used, for 3 or 4 doors 2 control units are required interconnected through the LK connector and the appropriate VE71KITE211A cable.
A cabinet with 2 control units can therefore be considered to be a 2-module system, while a cabinet with 1 control unit is a single module.

IMPORTANT: in a 2-door cabinet, doors are identified as either left hand or right hand from the perspective of an observer looking towards the front of the cabinet.

As a rule, the following associations apply for a cabinet or cabinet module with 2 doors.
- Door A = Left door, door B = Right door.
- Door A opens to the right, door B opens to the left.

For configurations outside this standard, the association of the particular case will be specified.

7. TYPES OF SLIDING DOOR MECHANISMS

There are 2 distinct types of horizontal sliding door mechanisms: OVERLAPPING and COPLANAR.

7.1. Overlapping door mechanism

Each door moves in a straight line along one of two parallel tracks.
The outermost door slides open to cover the inner door. when the inner door is opened it slides behind the outer door.

7.2. Coplanar door mechanism

When the doors are closed they are on the same plane. When either door is opened it moves both horizontally and outwards to cover the second door.

7.3. Use of the closed door sensor

The closed door sensor is used to securely identify the door closed position.
Its installation is mandatory on Coplanar opening systems while it is optional for overlapping sliding systems.

IMPORTANT: in the absence of closed door sensors, in the event of an interruption of the power supply to the reset, the SET-UP procedure must be performed again by pressing the B2 button or by pressing one of the buttons for at least 5s.

8. SELECTION OF THE TYPE OF MECHANISM AND FUNCTIONALITY OF THE CONTROL UNIT

a. Select the type of COPLANAR or OVERLAPPING mechanism by inserting the Relay module on pin CC1.
Inserted = COPLANAR/Not inserted = OVERLAPPING

b. In the SC1 selector, activate the DIP_SWITCHES from 1 to 8 and select the type of opening, the number of doors and the presence of the sensors as described below.

The DIP_SWITCHES from 1÷4 are used to set the configuration of the cabinet in relation to its number of doors and the double door opening mode.

DIP_SWITCH 5 defines the type of module, Master or Slave, for a structured cabinet with 2 modules (2 control units).
In Master mode DIP_SWITCH 5 is ON on the left.

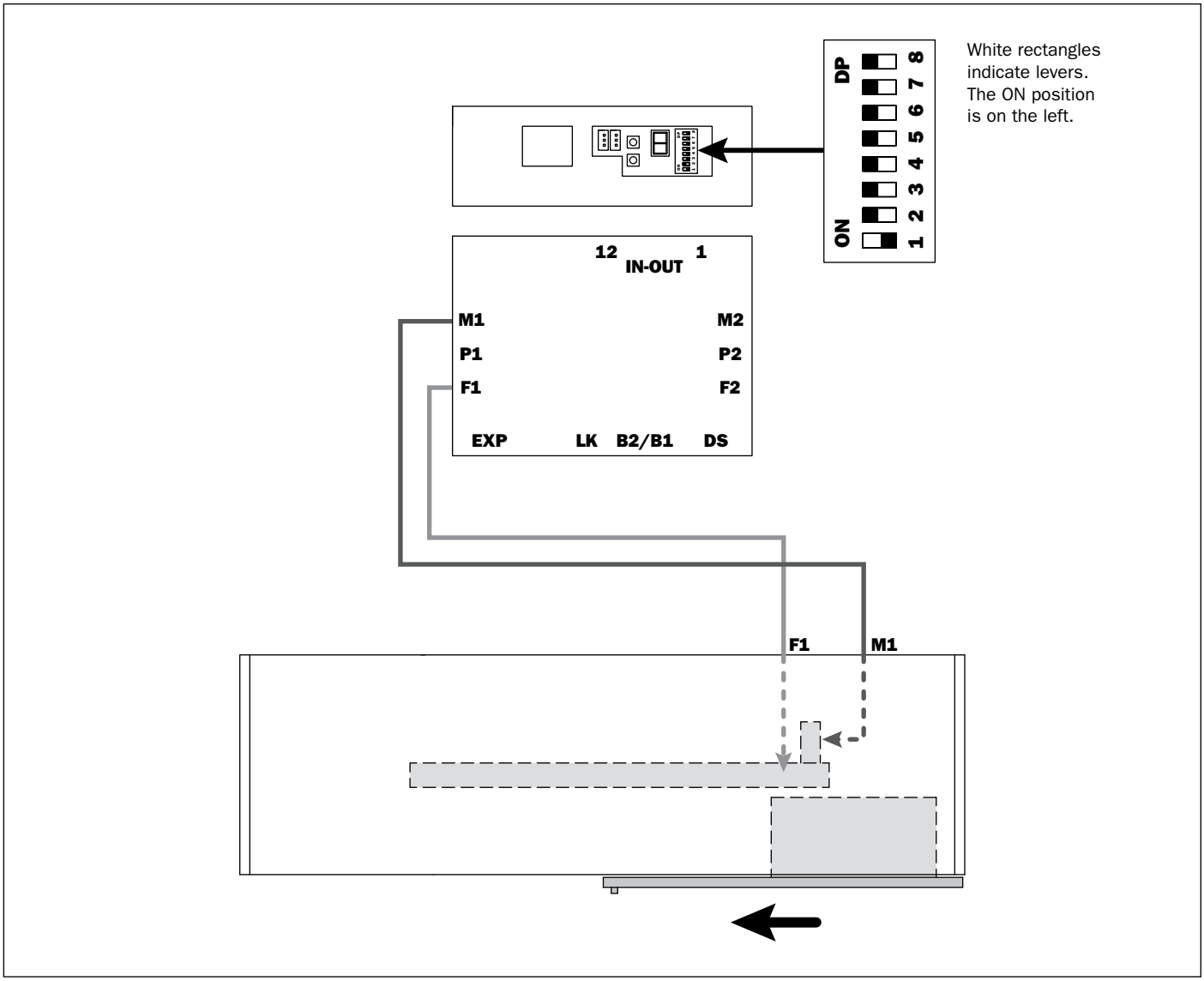
DIP_SWITCH 6 declares the presence of the closed door sensor for the mechanism with overlapping doors (for coplanar doors DIP_SWITCH 6 is not relevant).

DIP_SWITCH 7 determines the operating logic of the Auxiliary commands connected to connector CS1 clamps 4÷8 (see Section 9)

WARNING: The insertion of the Relay module and the changes on the DIP_SWITCH selector take effect after the command to start self-learning or by turning off and turning on the power to the control unit.

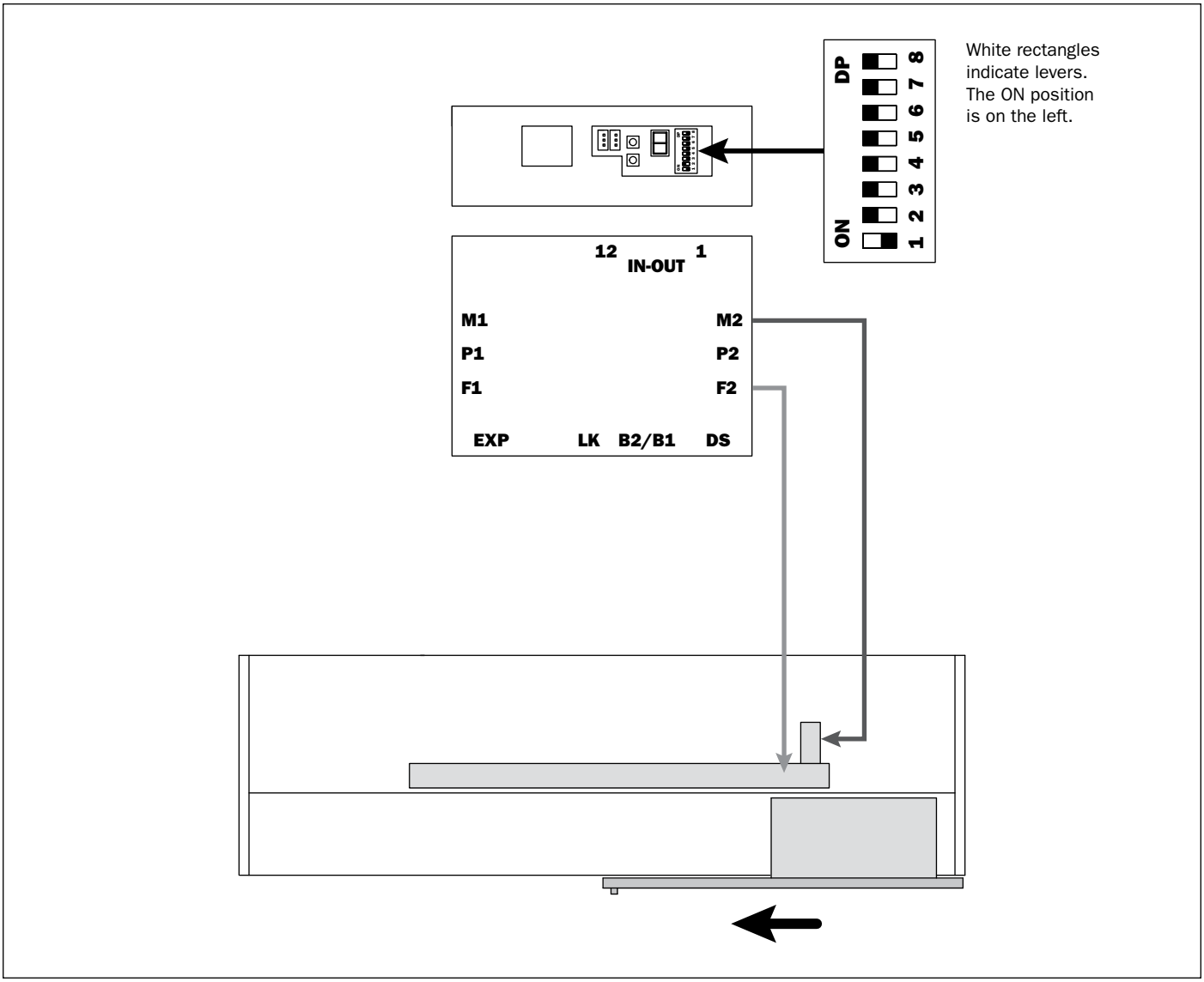
Configurations

9. CONFIGURATIONS C1 Base: S20 Base
1 RIGHT SLIDING DOOR



- Connect the output M1 of the control unit to the motor M1.
- Connect the closed door sensor to the F1 input. Then, using the double-sided adhesive tape that is already on the terminal part F1, fix the terminal part to the motor unit M1 as shown in the assembly manual.
- Set DIP_SWITCH 1 to ON status and the remaining ones to OFF position.

C1: S20 Top, M35, M35 Top, M50, M50 Flex, L70, L70 Flex, Glow+
1 RIGHT SLIDING DOOR



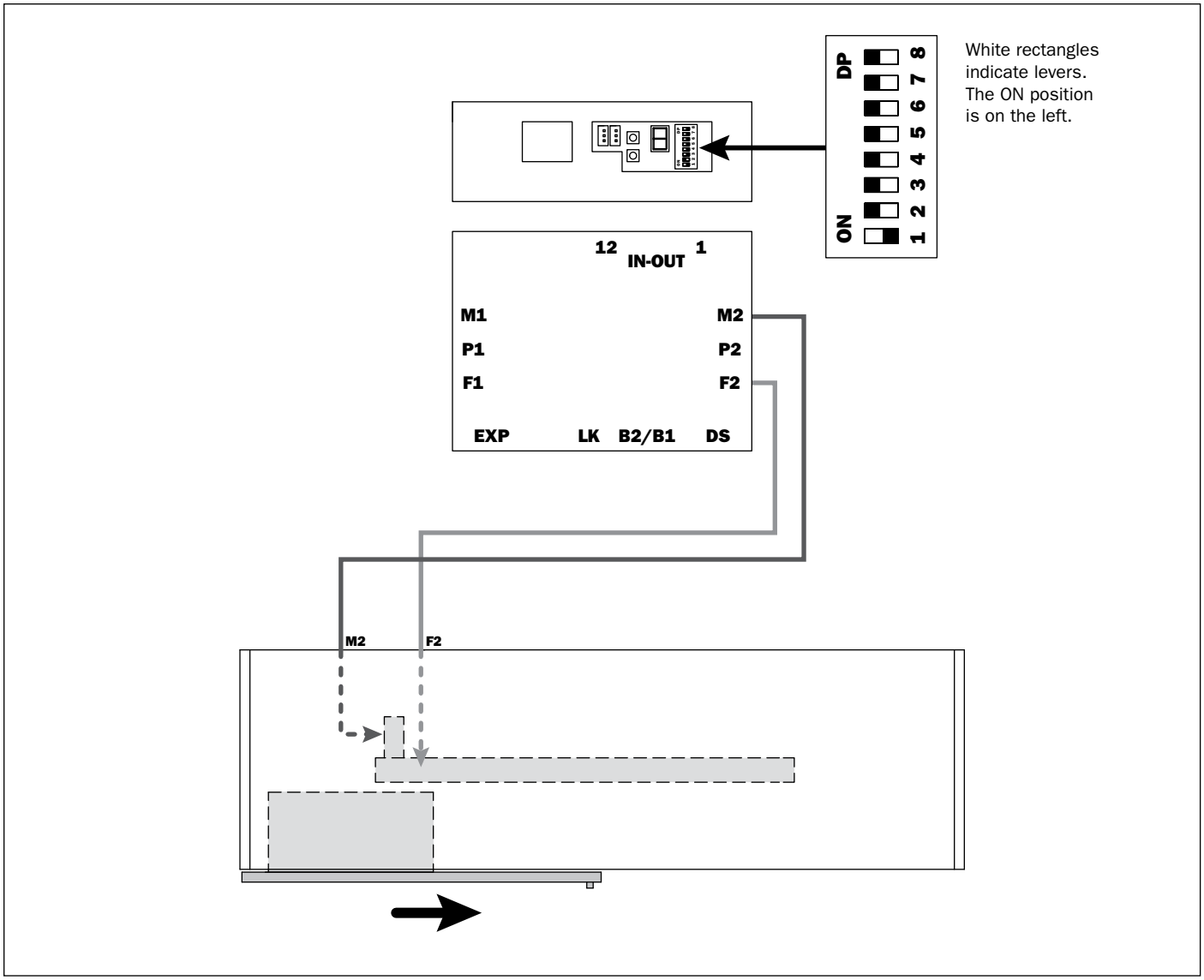
- Connect the output M2 of the control unit to the motor M2.

- Connect the closed door sensor to the F2 input. Then, using the double-sided adhesive tape that is already on the terminal part F2, fix the terminal part to the motor unit M2 as shown in the assembly manual.

- Set DIP_SWITCH 1 to ON status and the remaining ones to OFF position.

- In the case of Glow+ system (overlapping doors) with closed door sensor set DIP_SWITCH 6 to ON status.

C2 Base: S20 Base
1 LEFT SLIDING DOOR

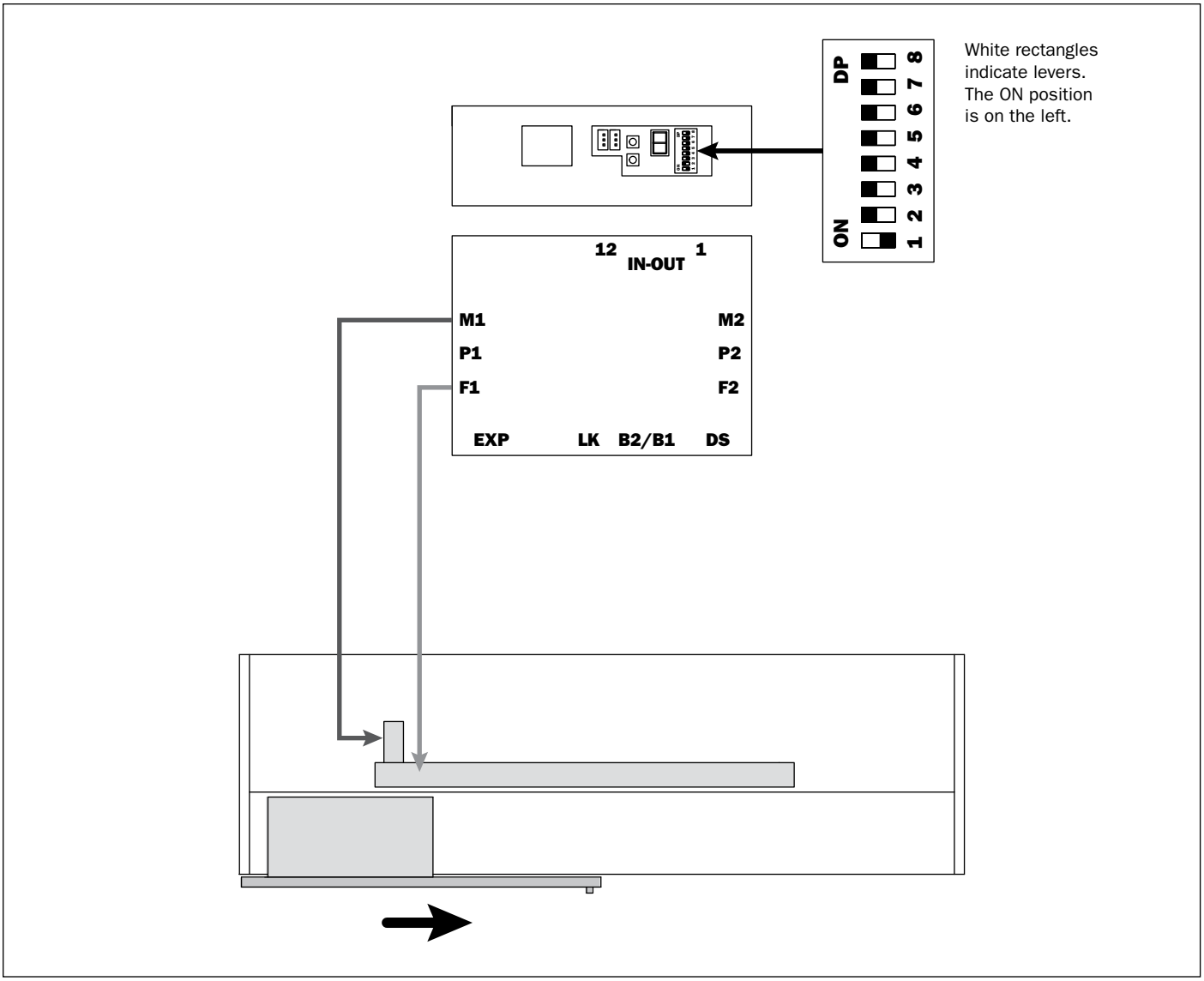


- Connect the output M2 of the control unit to the motor M2.

- Connect the closed door sensor to the F2 input. Then, using the double-sided adhesive tape that is already on the terminal part F2, fix the terminal part to the motor unit M2 as shown in the assembly manual.

- Set DIP_SWITCH 1 to ON status and the remaining ones to OFF position.

C2: S20 Top, M35, M35 Top, M50, M50 Flex, L70, L70 Flex, Glow+
1 LEFT SLIDING DOOR



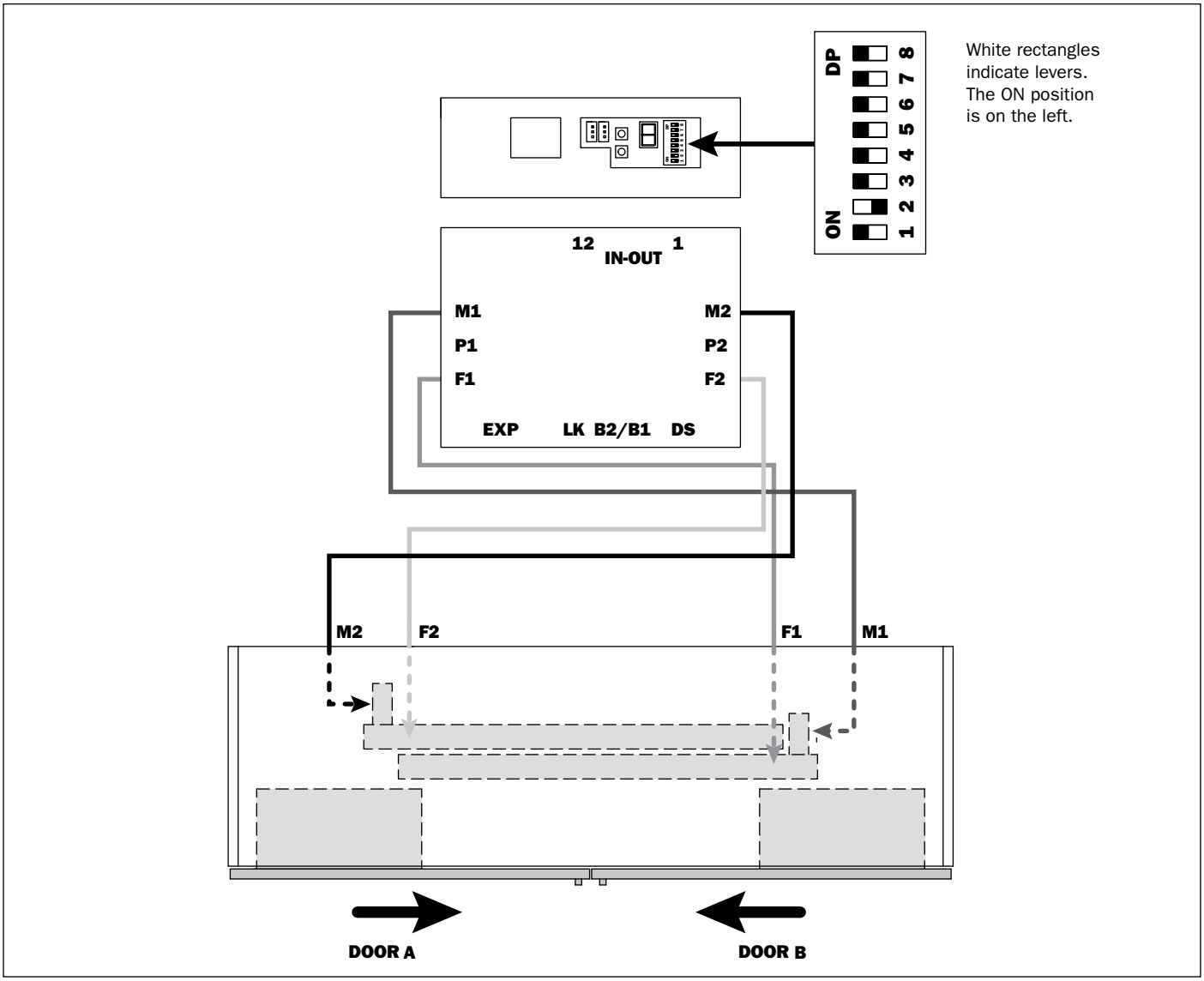
- Connect the output M1 of the control unit to the motor M1.

- Connect the closed door sensor to the F1 input. Then, using the double-sided adhesive tape that is already on the terminal part F1, fix the terminal part to the motor unit M1 as shown in the assembly manual.

- Set DIP_SWITCH 1 to ON status and the remaining ones to OFF position.

- In the case of Glow+ system (overlapping doors) with closed door sensor set DIP_SWITCH 6 to ON status.

C3 Base: S20 Base
2 SLIDING DOORS



- Connect the output M1 of the control unit to the motor M1 (Door B).

- Connect the closed door sensor to the F1 input. Then, using the double-sided adhesive tape that is already on the terminal part F1, fix the terminal part to the motor unit M1 as shown in the assembly manual.

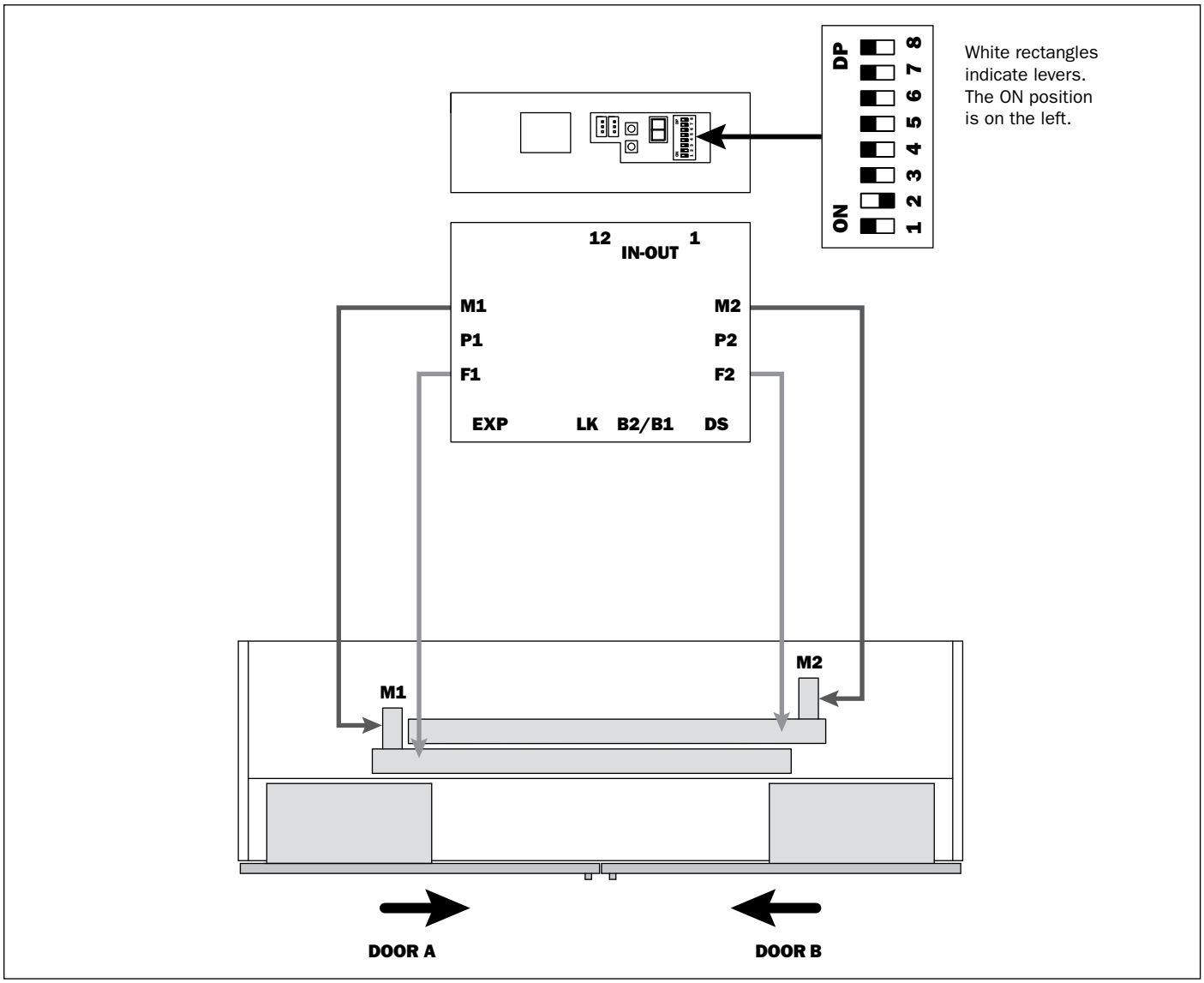
- Connect the output M2 of the control unit to the motor M2 (Door A).

- Connect the closed door sensor to the F2 input. Then, using the double-sided adhesive tape that is already on the terminal part F2, fix the terminal part to the motor unit M2 as shown in the assembly manual.

- Set DIP_SWITCH 2 to ON status and the remaining ones to OFF position.

- Only one door can be moved at a time.

C3 S20 Top, M35, M35 Top, M50, M50 Flex, L70, L70 Flex, Glow+
2 SLIDING DOORS



- Connect the output M1 of the control unit to the motor M1 (Door A).

- Connect the closed door sensor to the F1 input. Then, using the double-sided adhesive tape that is already on the terminal part F1, fix the terminal part to the motor unit M1 as shown in the assembly manual.

- Connect the output M2 of the control unit to the motor M2 (Door B).

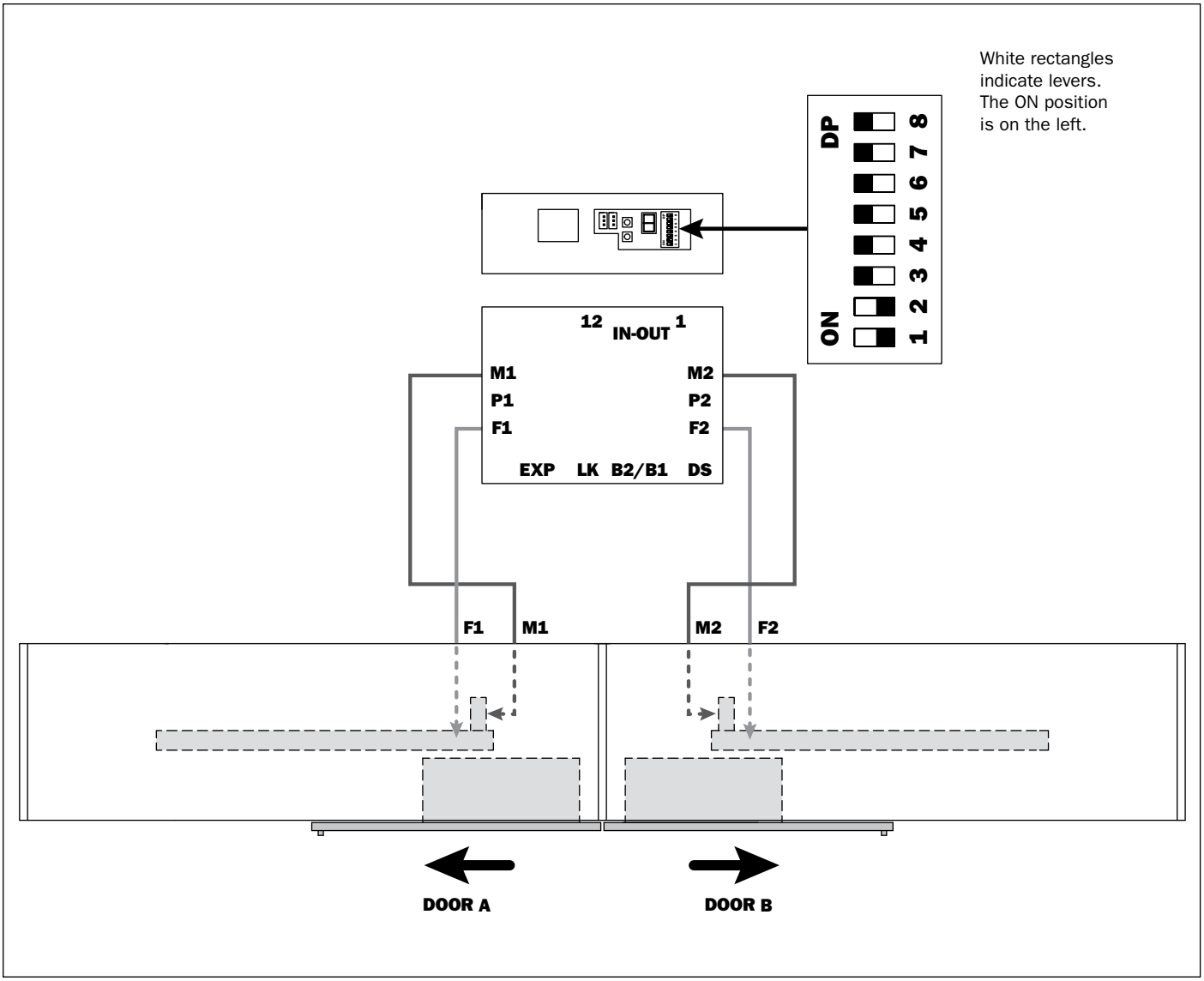
- Connect the closed door sensor to the F2 input. Then, using the double-sided adhesive tape that is already on the terminal part F2, fix the terminal part to the motor unit M2 as shown in the assembly manual.

- Set DIP_SWITCH 2 to ON status and the remaining ones to OFF position.

- In the case of Glow+ system (overlapping doors) with closed door sensor set DIP_SWITCH 6 to ON status.

- Only one door can be moved at a time.

C4 Base: S20 Base
2 SLIDING DOORS WITH REVERSO MOVEMENT



- Connect the output M1 of the control unit to the motor M1 (door A).

- Connect the closed door sensor to the F1 input. Then, using the double-sided adhesive tape that is already on the terminal part F1, fix the terminal part to the motor unit M1 as shown in the assembly manual.

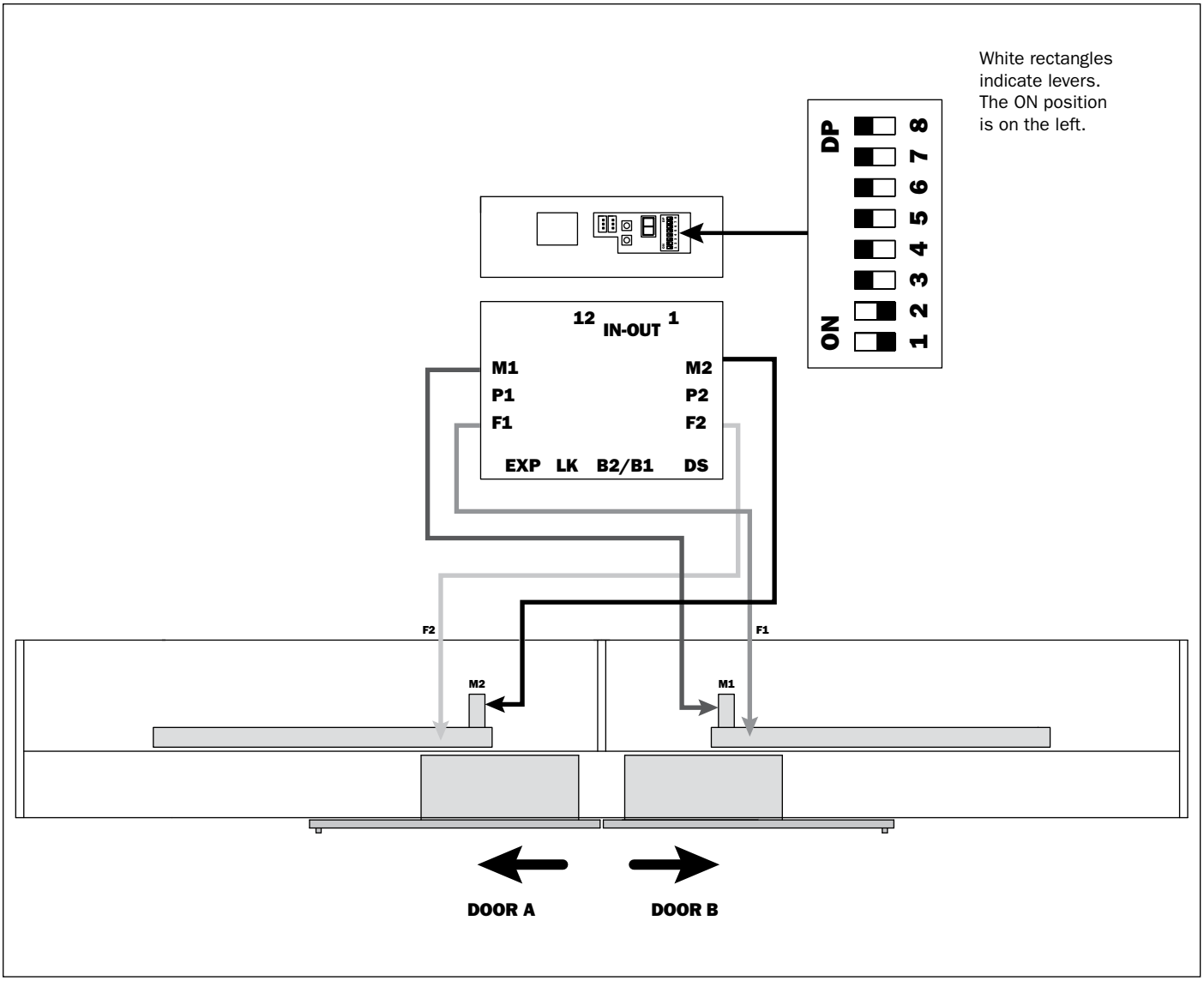
- Connect the output M2 of the control unit to the motor M2 (door B).

- Connect the closed door sensor to the F2 input. Then, using the double-sided adhesive tape that is already on the terminal part F2, fix the terminal part to the motor unit M2 as shown in the assembly manual.

- Set DIP_SWITCH 1 and 2 to ON and the remaining ones to OFF position.

- Door A and Door B move simultaneously when the opening/closing input is given to one of the two doors.

C4: S20 Top, M35, M35 Top, M50, M50 Flex, L70, L70 Flex, Glow+
2 SLIDING DOORS WITH REVERSO MOVEMENT



- Connect the output M1 of the control unit to the motor M1 (door B).

- Connect the closed door sensor to the F1 input. Then, using the double-sided adhesive tape that is already on the terminal part F1, fix the terminal part to the motor unit M1 as shown in the assembly manual.

- Connect the output M2 of the control unit to the motor M2 (door A).

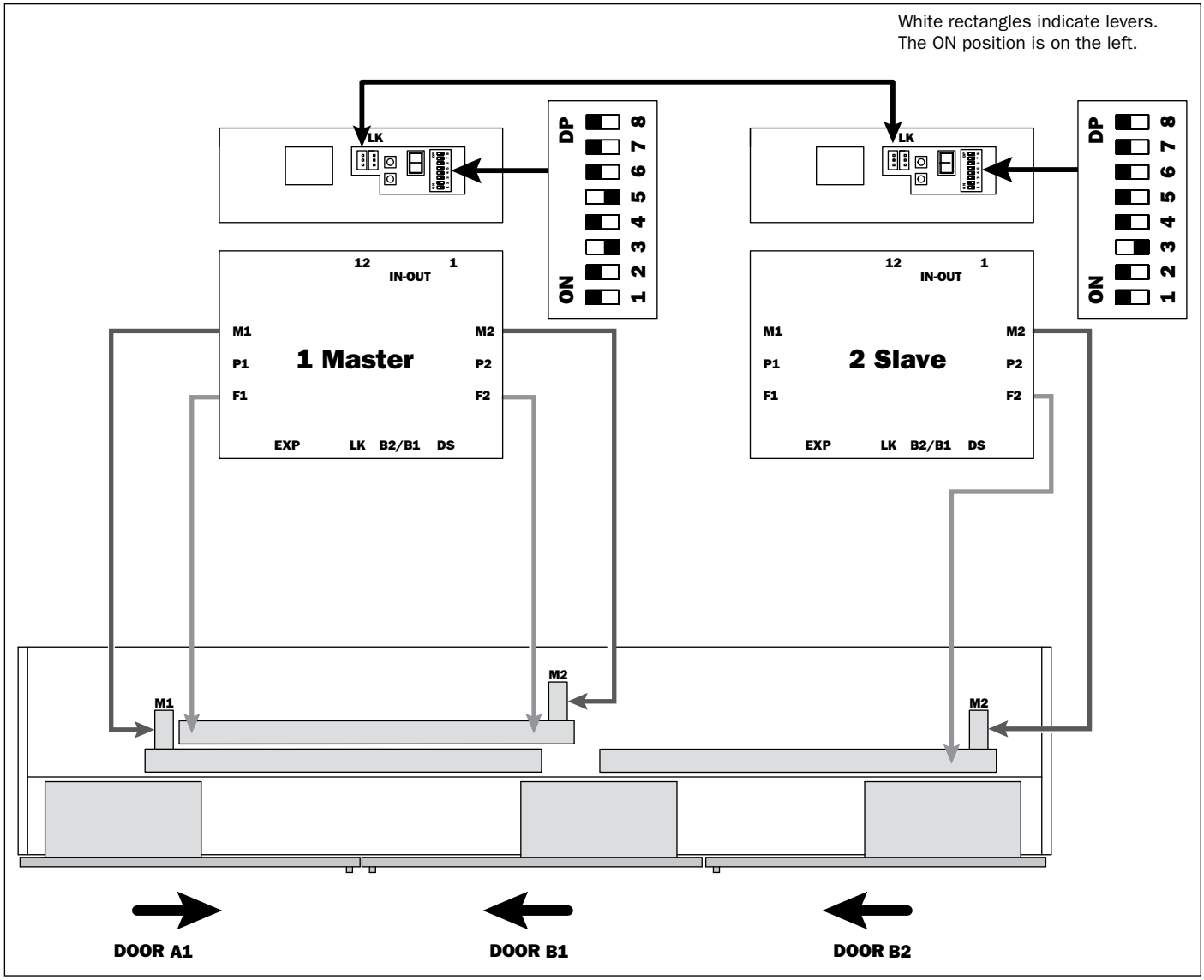
- Connect the closed door sensor to the F2 input. Then, using the double-sided adhesive tape that is already on the terminal part F2, fix the terminal part to the motor unit M2 as shown in the assembly manual.

- Set DIP_SWITCH 1 and 2 to ON and the remaining ones to OFF position.

- In the case of Glow+ system (overlapping doors) with closed door sensor set DIP_SWITCH 6 to ON status.

- Door A and Door B move simultaneously when the opening/closing input is given to one of the two doors.

C5: L70, Glow+
3 SLIDING DOORS



- Connect the output M1 of the control unit 1 to the motor M1 (Door A1).

- Connect the closed door sensor to the F1 input. Then, using the double-sided adhesive tape that is already on the terminal part F1, fix the terminal part to the motor unit M1 (Door A1) as shown in the assembly manual.

- Connect the output M2 of the control unit 1 to the motor M2 (Door B1).

- Connect the closed door sensor to the F2 input. Then, using the double-sided adhesive tape that is already on the terminal part F2, fix the terminal part to the motor unit M2 (Door B1) as shown in the assembly manual.

- Set DIP_SWITCH 3 and 5 of control unit 1 to ON status and the remaining ones to OFF position.

- Connect the output M2 of the control unit 2 to the motor M2 (Door B2).

- Connect the closed door sensor to the F2 input. Then, using the double-sided adhesive tape that is already on the terminal part F2, fix the terminal part to the motor unit M2 (Door B2) as shown in the assembly manual.

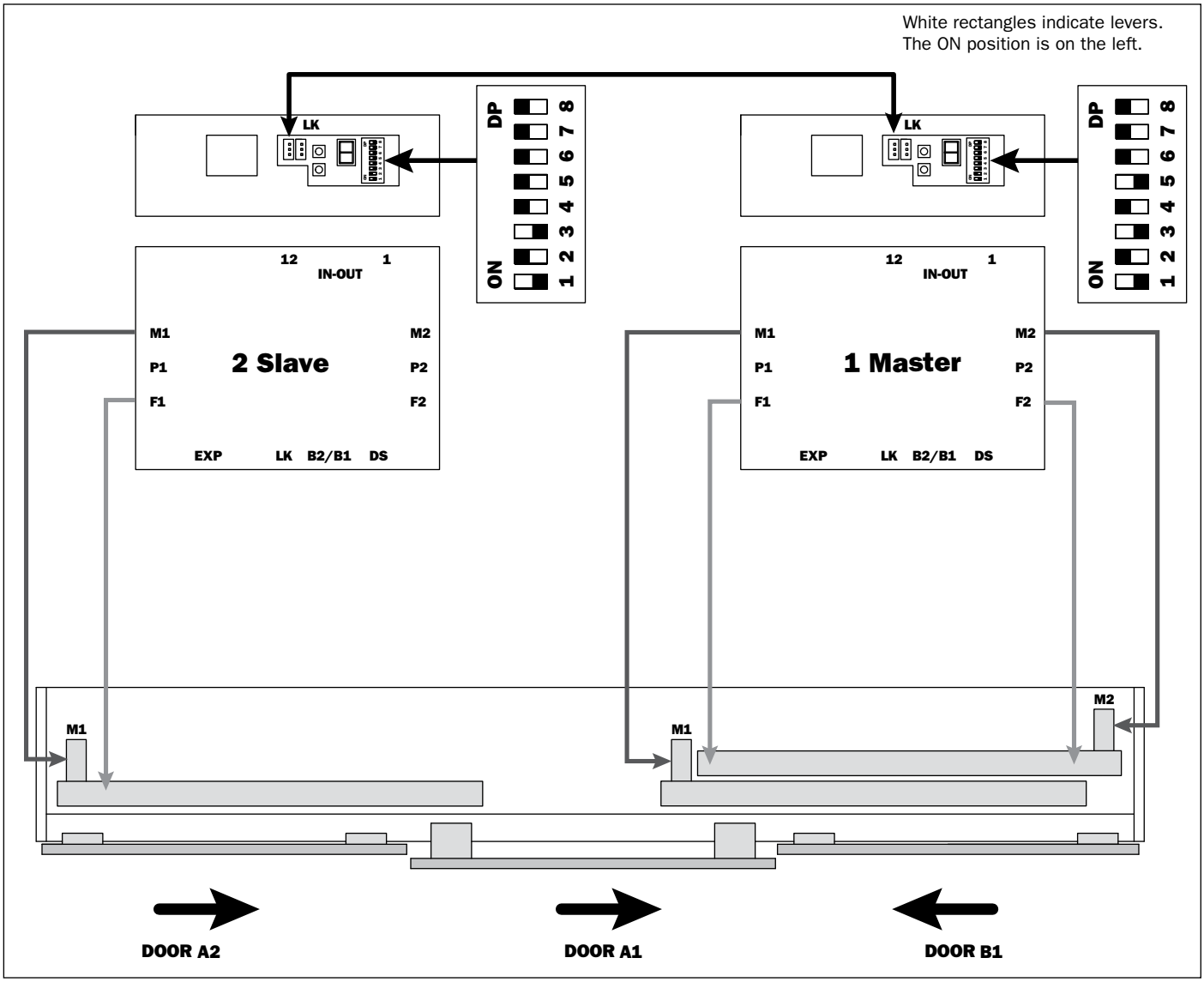
- Set the DIP_SWITCH 3 of the control unit 2 to ON status and the remaining ones to OFF position.

- Connect the two control units via the LK input/output using the VE71KITE211A cable.

- In case of Glow+ system (overlapping doors) with closed door sensor, set DIP_SWITCH 6 to ON status on both control units.

- Only one door can be moved at a time.

C6: Glow+
3 SLIDING DOORS



- Connect the output M1 of the control unit 1 to the motor M1 (Door A1).

- Connect the closed door sensor to the F1 input. Then, using the double-sided adhesive tape that is already on the terminal part F1, fix the terminal part to the motor unit M1 (Door A1) as shown in the assembly manual.

- Connect the output M2 of the control unit 1 to the motor M2 (Door B1).

- Connect the closed door sensor to the F2 input. Then, using the double-sided adhesive tape that is already on the terminal part F2, fix the terminal part to the motor unit M2 (Door B1) as shown in the assembly manual.

- Set DIP_SWITCH 1, 3 and 5 of control unit 1 to ON status and the remaining ones to OFF position position.

- Connect the output M1 of the control unit 2 to the motor M1 (Door A2).

- Connect the closed door sensor to the F1 input. Then, using the double-sided adhesive tape that is already on the terminal part F1, fix the terminal part to the motor unit M1 (Door A2) as shown in the assembly manual.

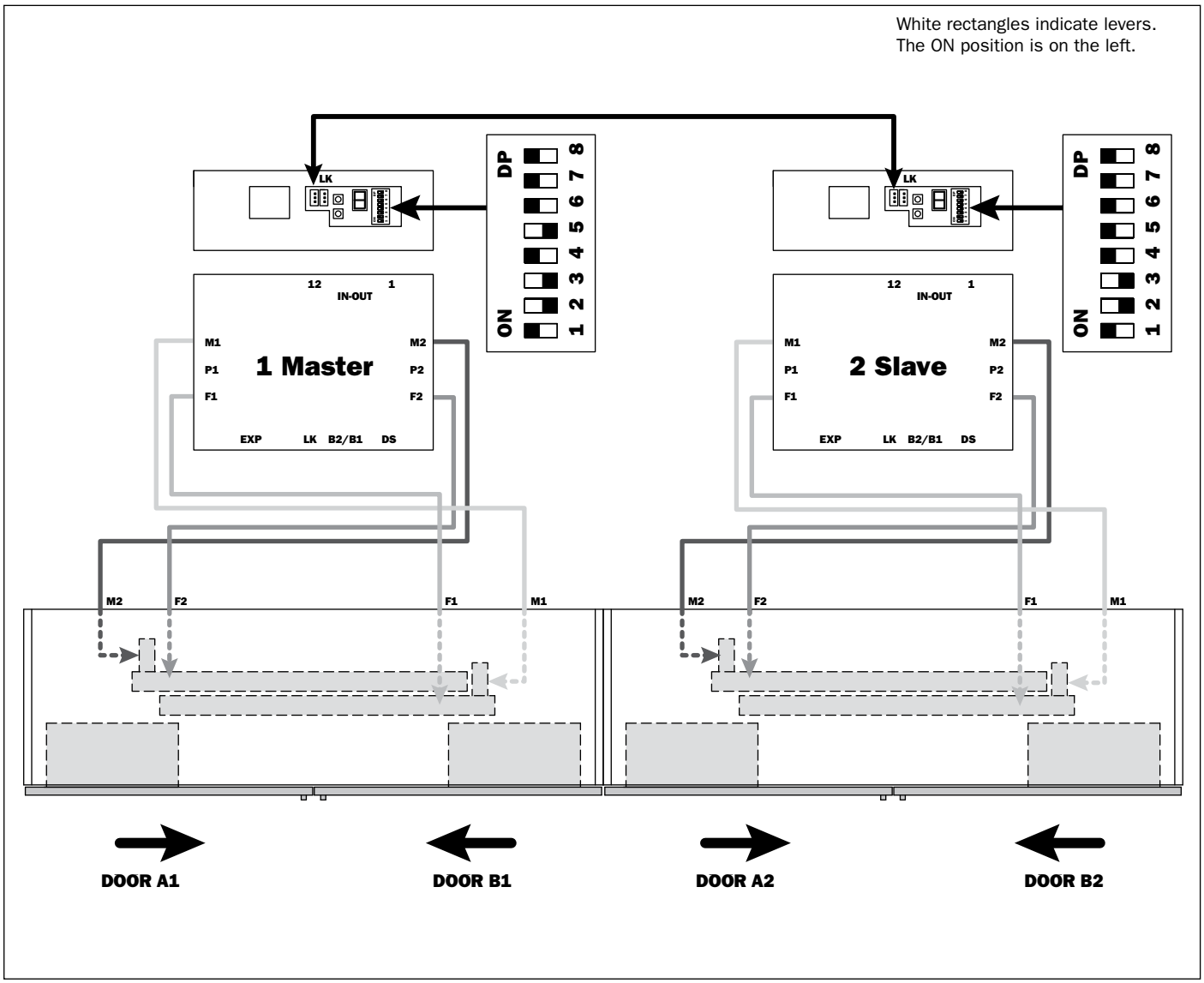
- Set DIP_SWITCH 1 and 3 of control unit 2 to ON status and the remaining ones to OFF position.

- Connect the two control units via the LK input/output using the VE71KITE211A cable.

- In case of Glow+ system (overlapping doors) with closed door sensor, set DIP_SWITCH 6 to ON status on both control units.

- Only one door can be moved at a time.

C7 Base: S20 Base
4 SLIDING DOORS WITH SINGLE DOOR MOVEMENT



- Connect the output M1 of the control unit 1 to the motor M1 (Door B1).

- Connect the closed door sensor to the F1 input. Then, using the double-sided adhesive tape that is already on the terminal part F1, fix the terminal part to the motor unit M1 (Door B1) as shown in the assembly manual.

- Connect the output M2 of the control unit 1 to the motor M2 (Door A1).

- Connect the closed door sensor to the F2 input. Then, using the double-sided adhesive tape that is already on the terminal part F2, fix the terminal part to the motor unit M2 (Door A1) as shown in the assembly manual.

- Set DIP_SWITCH 2, 3 and 5 to ON and the remaining ones to OFF position.

- Connect the output M1 of the control unit 2 to the motor M1 (Door B2).

- Connect the closed door sensor to the F1 input. Then, using the double-sided adhesive tape that is already on the terminal part F1, fix the terminal part to the motor unit M1 (Door B2) as shown in the assembly manual.

- Connect the output M2 of the control unit 2 to the motor M2 (Door A2).

- Connect the closed door sensor to the F2 input. Then, using the double-sided adhesive tape that is already on the terminal part F2, fix the terminal part to the motor unit M2 (Door A2) as shown in the assembly manual.

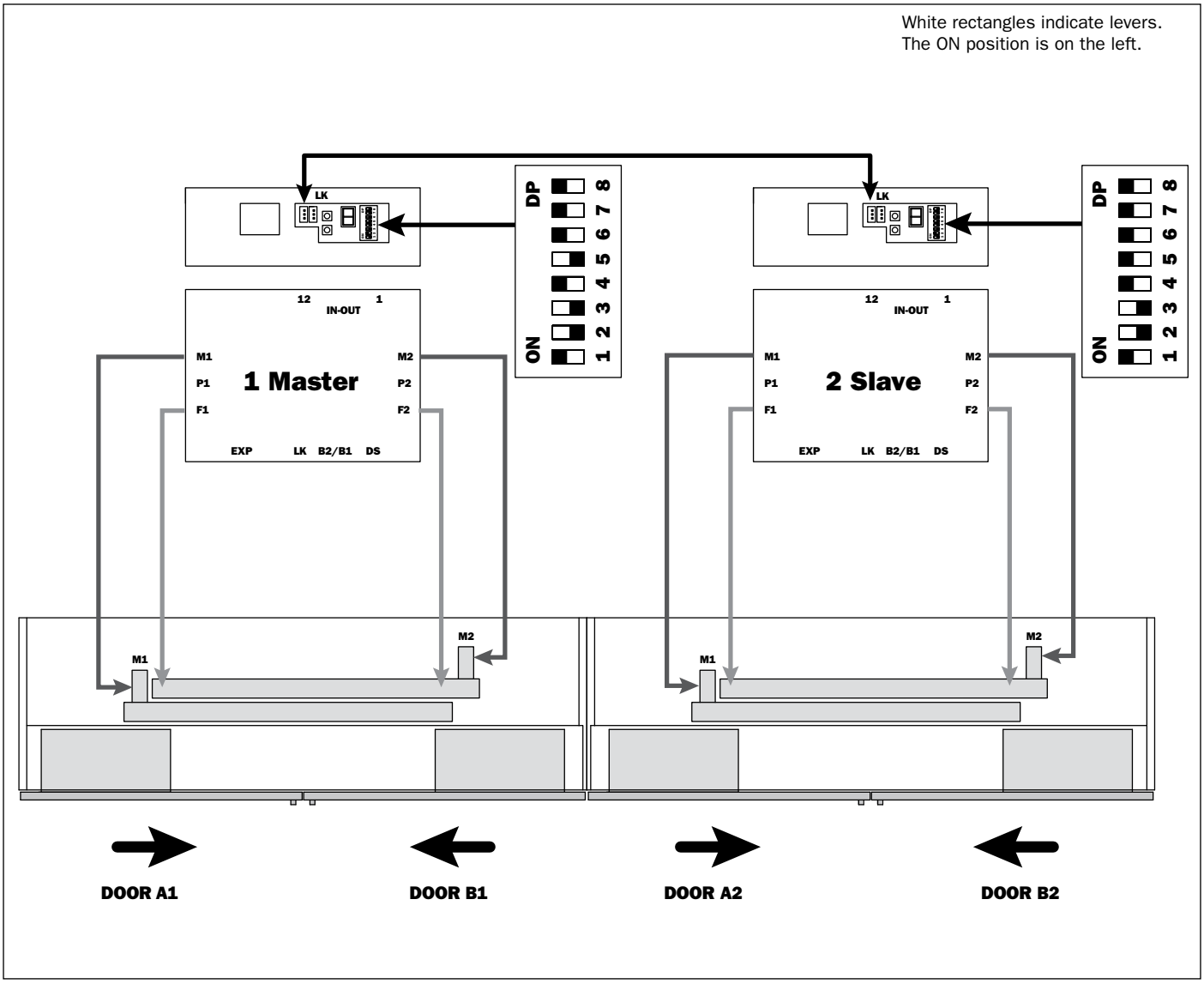
- Set DIP_SWITCH 2 and 3 to ON and the remaining ones to OFF position.

- Connect the two control units via the LK input/output using the VE71KITE211A cable.

- The opening of Door A1 prevents the handling of Door B1 and vice versa.

- The opening of Door A2 prevents the movement of Door B2 and vice versa.

C7: S20 Top, M35, M35 Top, M50, M50 Flex, L70, L70 Flex, Glow+
4 SLIDING DOORS WITH SINGLE DOOR MOVEMENT



- Connect the output M1 of the control unit 1 to the motor M1 (Door A1).

- Connect the closed door sensor to the F1 input. Then, using the double-sided adhesive tape that is already on the terminal part F1, fix the terminal part to the motor unit M1 (Door A1) as shown in the assembly manual.

- Connect the output M2 of the control unit 1 to the motor M2 (Door B1).

- Connect the closed door sensor to the F2 input. Then, using the double-sided adhesive tape that is already on the terminal part F2, fix the terminal part to the motor unit M2 (Door B1) as shown in the assembly manual.

- Set DIP_SWITCH 2, 3 and 5 to ON and the remaining ones to OFF position.

- Connect the output M1 of the control unit 2 to the motor M1 (Door A2).

- Connect the closed door sensor to the F1 input. Then, using the double-sided adhesive tape that is already on the terminal part F1, fix the terminal part to the motor unit M1 (Door A2) as shown in the assembly manual.

- Connect the output M2 of the control unit 2 to the motor M2 (Door B2).

- Connect the closed door sensor to the F2 input. Then, using the double-sided adhesive tape that is already on the terminal part F2, fix the terminal part to the motor unit M2 (Door B2) as shown in the assembly manual.

- Set DIP_SWITCH 2 and 3 to ON and the remaining ones to OFF position.

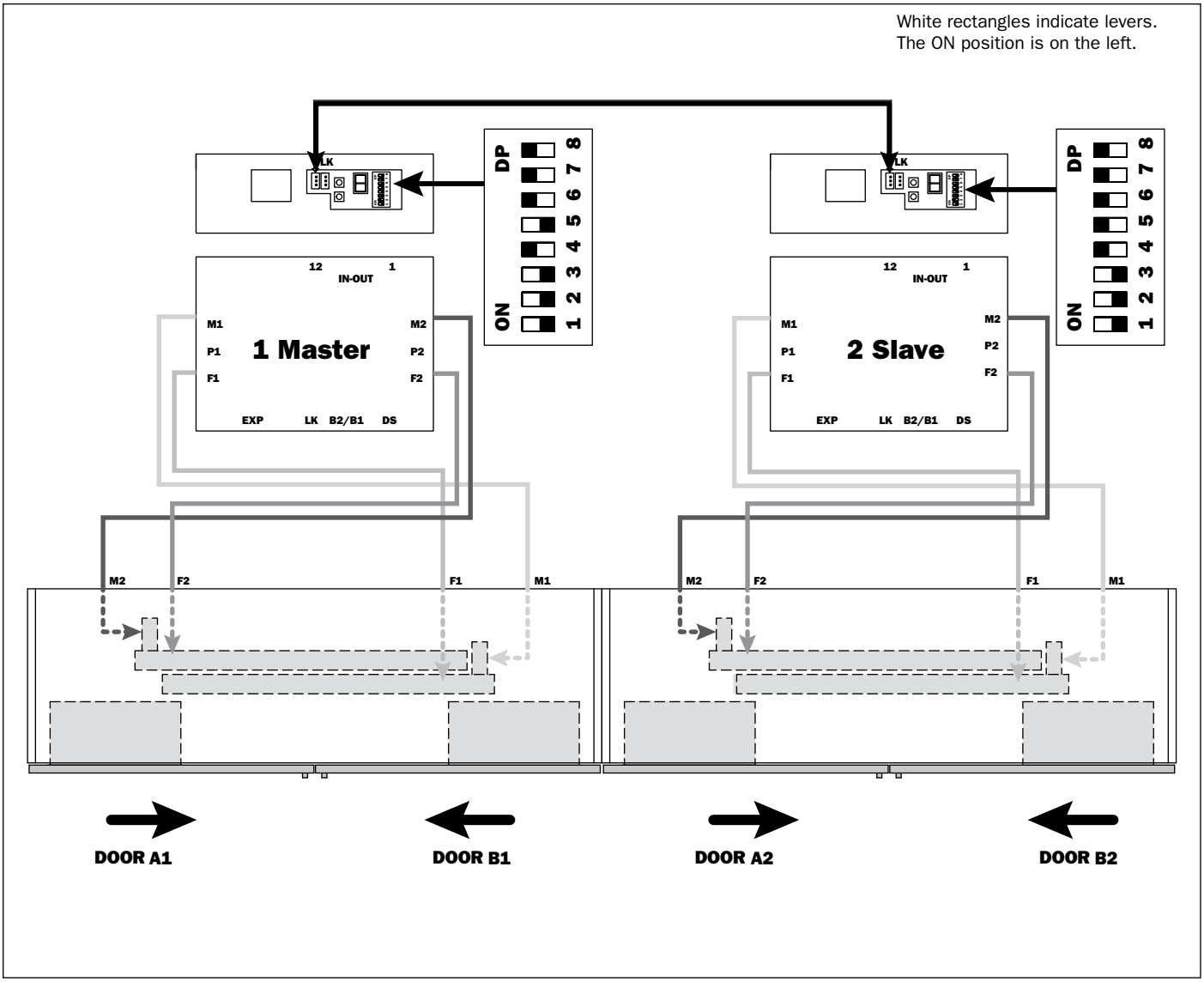
- Connect the two control units via the LK input/output using the VE71KITE211A cable.

- In case of Glow+ system (overlapping doors) with closed door sensor, set DIP_SWITCH 6 to ON status on both control units.

- The opening of Door A1 prevents the movement of Door B1 and vice versa.

- The opening of Door A2 prevents the movement of Door B2 and vice versa.

C8 Base: S20 Base
4 SLIDING DOORS WITH SIMULTANEOUS MOVEMENT OF THE DOORS B1 - A2



- Connect the output M1 of the control unit 1 to the motor M1 (Door B1).

- Connect the closed door sensor to the F1 input. Then, using the double-sided adhesive tape that is already on the terminal part F1, fix the terminal part to the motor unit M1 (Door B1) as shown in the assembly manual.

- Connect the output M2 of the control unit 1 to the motor M2 (Door A1).

- Connect the closed door sensor to the F2 input. Then, using the double-sided adhesive tape that is already on the terminal part F2, fix the terminal part to the motor unit M2 (Door A1) as shown in the assembly manual.

- Set DIP_SWITCH 1, 2, 3 and 5 of control unit 1 to ON status and the remaining ones to OFF position.

- Connect the output M1 of the control unit 2 to the motor M1 (Door B2).

- Connect the closed door sensor to the F1 input. Then, using the double-sided adhesive tape that is already on the terminal part F1, fix the terminal part to the motor unit M1 (Door B2) as shown in the assembly manual.

- Connect the output M2 of the control unit 2 to the motor M2 (Door A2).

- Connect the closed door sensor to the F2 input. Then, using the double-sided adhesive tape that is already on the terminal part F2, fix the terminal part to the motor unit M2 (Door A2) as shown in the assembly manual.

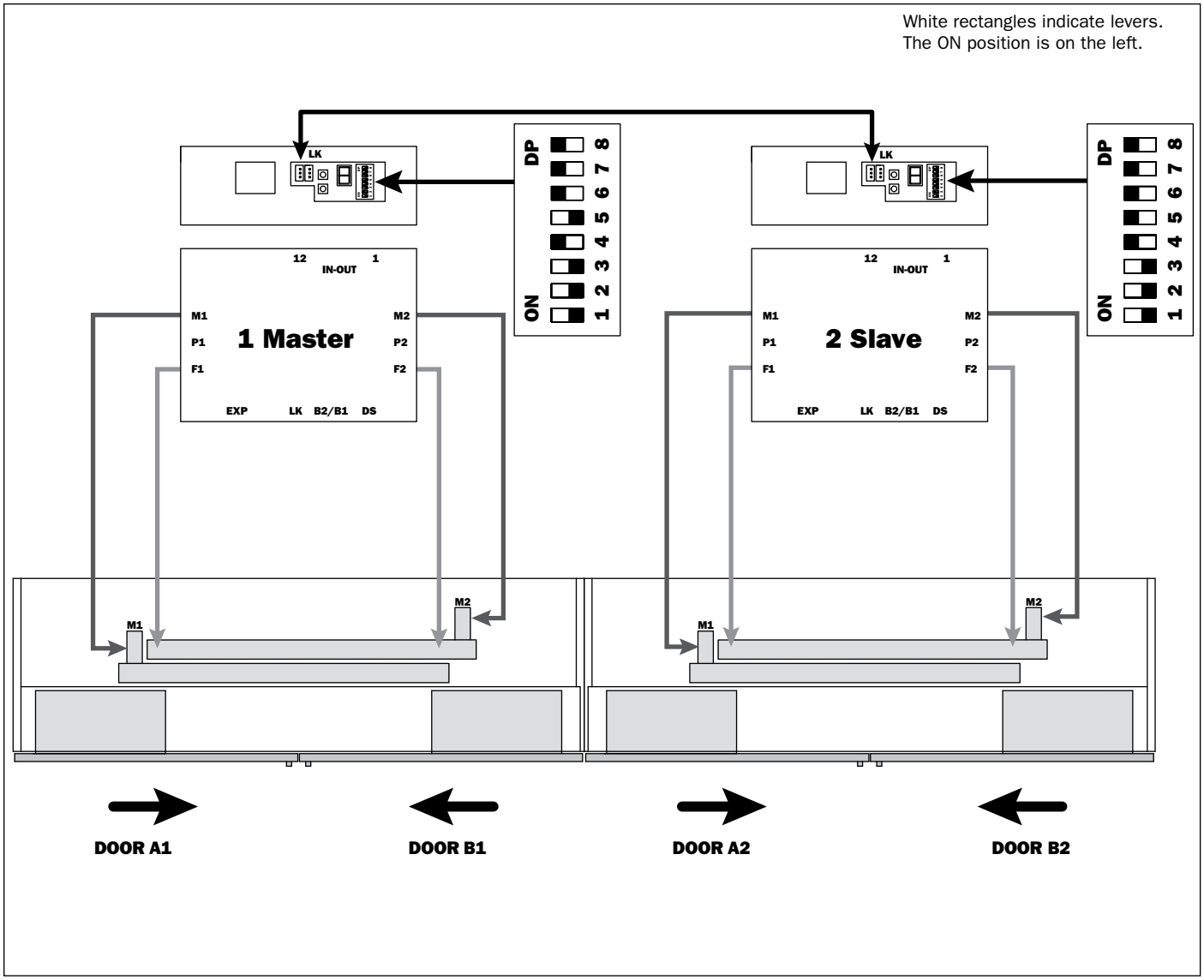
- Set the DIP_SWITCH 3 of the control unit 1, 2 and 3 to ON status and the remaining ones to OFF position.

- Connect the two control units via the LK input/output using the VE71KITE211A cable.

- The doors B1 and A2 always move simultaneously, and their opening prevents the movement of the door A1 and B2.

- The opening of the door A1 or B2 prevents the movement of the doors B1 and A2.

C8: S20 Top, M35, M35 Top, M50, M50 Flex, L70, L70 Flex, Glow+
4 SLIDING DOORS WITH SIMULTANEOUS MOVEMENT B1 - A2 DOORS



- Connect the output M1 of the control unit 1 to the motor M1 (Door A1).

- Connect the closed door sensor to the F1 input. Then, using the double-sided adhesive tape that is already on the terminal part F1, fix the terminal part to the motor unit M1 (Door A1) as shown in the assembly manual.

- Connect the output M2 of the control unit 1 to the motor M2 (Door B2).

- Connect the closed door sensor to the F2 input. Then, using the double-sided adhesive tape that is already on the terminal part F2, fix the terminal part to the motor unit M2 (Door B1) as shown in the assembly manual.

- Set DIP_SWITCH 1, 2, 3 and 5 of control unit 1 to ON status and the remaining ones to OFF position.

- Connect the output M1 of the control unit 2 to the motor M1 (Door A2).

- Connect the closed door sensor to the F1 input. Then, using the double-sided adhesive tape that is already on the terminal part F1, fix the terminal part to the motor unit M1 (Door A2) as shown in the assembly manual.

- Connect the output M2 of the control unit 2 to the motor M2 (Door B2).

- Connect the closed door sensor to the F2 input. Then, using the double-sided adhesive tape that is already on the terminal part F2, fix the terminal part to the motor unit M2 (Door B2) as shown in the assembly manual.

- Set the DIP_SWITCH 3 of the control unit 1, 2 and 3 to ON status and the remaining ones to OFF position.

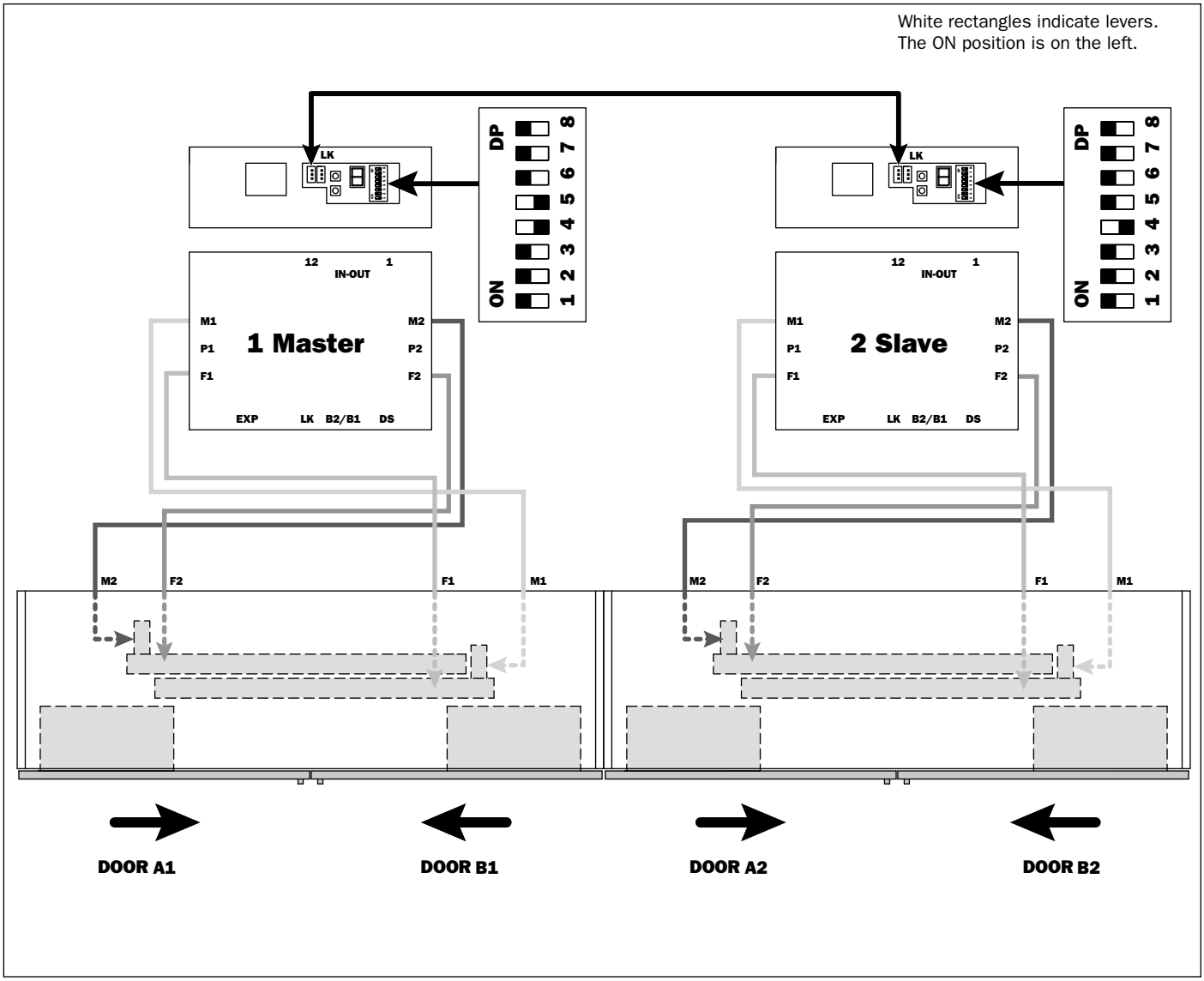
- Connect the two control units via the LK input/output using the VE71KITE211A cable.

- In case of Glow+ system (overlapping doors) with closed door sensor, set DIP_SWITCH 6 to ON status on both control units.

- The doors B1 and A2 always move simultaneously, and their opening prevents the movement of the door A1 and B2.

- The opening of the door A1 or B2 prevents the movement of the doors B1 and A2.

C9 Base: S20 Base
4 SLIDING DOORS WITH SIMULTANEOUS MOVEMENT OF THE DOORS B1 - A2 AND A1 - B2



- Connect the output M1 of the control unit 1 to the motor M1 (Door B1).

- Connect the closed door sensor to the F1 input. Then, using the double-sided adhesive tape that is already on the terminal part F1, fix the terminal part to the motor unit M1 (Door B1) as shown in the assembly manual.

- Connect the output M2 of the control unit 1 to the motor M2 (Door A1).

- Connect the closed door sensor to the F2 input. Then, using the double-sided adhesive tape that is already on the terminal part F2, fix the terminal part to the motor unit M2 (Door A1) as shown in the assembly manual.

- Set DIP_SWITCH 4 and 5 of control unit 1 to ON status and the remaining ones to OFF position.

- Connect the output M1 of the control unit 2 to the motor M1 (Door B2).

- Connect the closed door sensor to the F1 input. Then, using the double-sided adhesive tape that is already on the terminal part F1, fix the terminal part to the motor unit M1 (Door B2) as shown in the assembly manual.

- Connect the output M2 of the control unit 2 to the motor M2 (Door A2).

- Connect the closed door sensor to the F2 input. Then, using the double-sided adhesive tape that is already on the terminal part F2, fix the terminal part to the motor unit M2 (Door A2) as shown in the assembly manual.

- Set the DIP_SWITCH 3 of the control unit 4 to ON status and the remaining ones to OFF position.

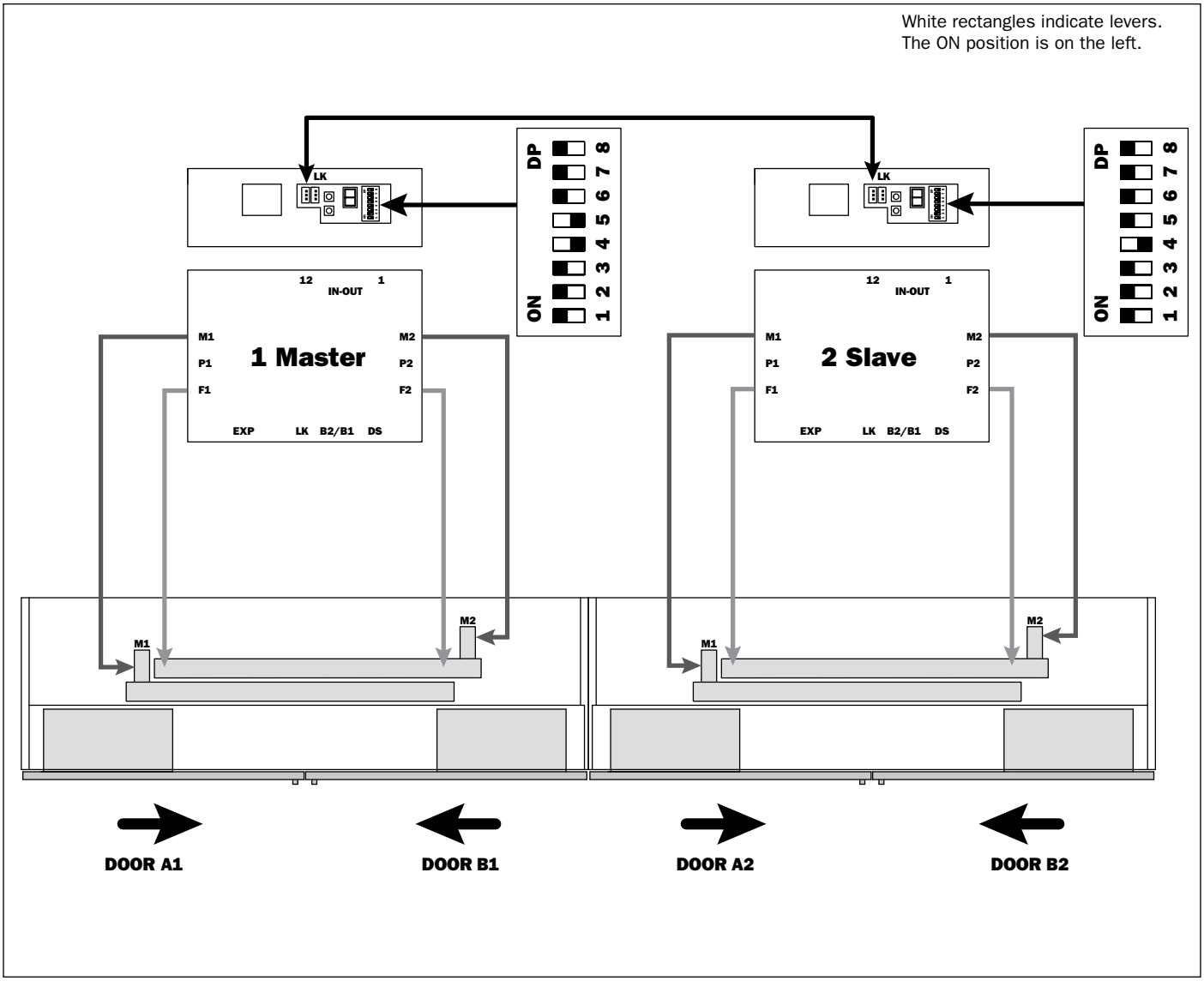
- Connect the two control units via the LK input/output using the VE71KITE211A cable.

- Doors A1 and B2 always move simultaneously.

- Doors B1 and A2 always move simultaneously.

- The opening of any pair of doors prevents the movement of the other.

C9: S20 Top, M35, M35 Top, M50, M50 Flex, L70, L70 Flex, Glow+
4 SLIDING DOORS WITH SIMULTANEOUS MOVEMENT OF THE DOORS B1 - A2 AND A1 - B2



- Connect the output M1 of the control unit 1 to the motor M1 (Door A1).

- Connect the closed door sensor to the F1 input. Then, using the double-sided adhesive tape that is already on the terminal part F1, fix the terminal part to the motor unit M1 (Door A1) as shown in the assembly manual.

- Connect the output M2 of the control unit 1 to the motor M2 (Door B1).

- Connect the closed door sensor to the F2 input. Then, using the double-sided adhesive tape that is already on the terminal part F2, fix the terminal part to the motor unit M2 (Door B1) as shown in the assembly manual.

- Set DIP_SWITCH 4 and 5 of control unit 1 to ON status and the remaining ones to OFF position.

- Connect the output M1 of the control unit 2 to the motor M1 (Door A2).

- Connect the closed door sensor to the F1 input. Then, using the double-sided adhesive tape that is already on the terminal part F1, fix the terminal part to the motor unit M1 (Door A2) as shown in the assembly manual.

- Connect the output M2 of the control unit 2 to the motor M2 (Door B2).

- Connect the closed door sensor to the F2 input. Then, using the double-sided adhesive tape that is already on the terminal part F2, fix the terminal part to the motor unit M2 (Door B2) as shown in the assembly manual.

- Set the DIP_SWITCH 3 of the control unit 4 to ON status and the remaining ones to OFF position.

- Connect the two control units via the LK input/output using the VE71KITE211A cable.

- In case of Glow+ system (overlapping doors) with closed door sensor, set DIP_SWITCH 6 to ON status on both control units.

- Doors A1 and B2 always move simultaneously.

- Doors B1 and A2 always move simultaneously.

- The opening of any pair of doors prevents the movement of the other.

10. SELF-LEARNING PROCEDURE

10.1 Use of self-learning

The self-learning procedure helps the control unit learn and check the dimensions and status of the cabinet.

It is necessary for:
- learning the length of the movement of each door;
- checking the presence or absence of each door with respect to the configuration set by DIP_SWITCH;
- checking the installation of the closed door sensor, if present.

Self-learning must necessarily be carried out in the following cases:
- At the first use of the control unit after installation;
- If it has not been done before, after setting the configuration DIP_SWITCHES;
- If it has not been inserted before, after inserting the CC1 jumper for coplanar movement, having first disconnected the power supply for at least 30 seconds;
- Each time the power supply is restored with the Glow+ system for which closed door sensors have not been provided.

In the situations indicated above, the operation of the motorised movement is inhibited until the self-learning procedure is successfully carried out.

Any door control input (from a light button, auxiliary input, remote control or manual push) does not activate the motorised movement of the door.

When the user tries to start the door in any of the ways mentioned, the control unit emits a specific acoustic signal (see Section 4.4) which draws the user's attention to the need for self-learning.

The self-learning procedure can be repeated whenever desired. It is advisable to perform it in some particular situations:
e.g. if a misalignment has occurred in the measurement of the position of the door (from encoder) due to accidental causes (e.g. If the belt jumps) or wear and tear of the mechanism (e.g. slips, belt loosening, etc.) that no longer allows regular operation (e.g. the door stops before it is due or hits the end of the run and recoils as if there were an obstacle).

Obviously, mechanical deterioration beyond a certain limit will require an adequate maintenance operation of the mechanism itself (e.g. pulley or belt replacement) and cannot be compensated only by performing self-learning again.

10.2. PERFORMING SELF-LEARNING

10.2.1. Self-learning for cabinet with 1 or 2 doors from control unit or remote control

Self learning mode is initiated:
1. by pressing the B2 BUTTON on the front of the control unit for a long time (3 seconds);
2. by pressing for a long time (5 seconds) any of the radio control buttons that are associated with one of the installed doors;
3. by means of any luminous button on the cabinet side (with the special sequence described in the dedicated paragraph (1.1.1. page 27);

The procedure is started with both open and closed doors.

The movement of the doors during the self-learning procedure takes place at a reduced safety speed.

Steps of the self-learning procedure:

1. Start: the BUZZER emits 1 long buzzer signal.
2. Each open door is activated and brought into complete closure position.
3. When all the doors present are closed, the learning procedure begins.
Starting from the door connected to the motor M1, each door performs a complete opening and closing cycle. During this process it stores the length of the movement both when opening and closing. If one of the doors provided for by the configuration is not detected the procedure will report this absence (encoder counter feedback).
4. For each recognised door present, the length of the learned opening stroke is compared with that of the closing stroke.
If their difference in absolute value is within the maximum acceptable error (3 mm) the result of the procedure is positive, otherwise negative.
5. End: if the result is positive, the BUZZER emits 1 long sound (as at the start of the procedure), otherwise it emits 5 medium length sounds. In both cases, exit from the self-learning procedure is carried out.

If there is a discrepancy between the closed door sensor declared by the DIP_SWITCH during configuration and its recognition in self-learning or between the presence of the door declared by the DIP_SWITCH during configuration and its recognition in self-learning, the procedure ends with a negative outcome (the display shows the configuration error code, for which see Section 13.3).

After a failed self-learning procedure due to a movement learning error, operation of the cabinet is inhibited even if self-learning was started with a previously operating cabinet.
In the case of failed self-learning, the last successful learning is NOT considered valid and the last execution always "deletes" the previous data.

10.2.2. Self-learning for 3-door cabinet

The self-learning entry is started as for the cabinet with 1 or 2 doors.

The performance of the procedure is defined as for the cabinet with 1 or 2 doors with the particularity that the learning runs are performed first for the doors connected to the Master control unit and then for the door connected to the Slave control unit.

Thus, in the C5 cabinet configuration (1 Master control unit) the learning order is A1, B1, B2, while in the C6 configuration (2 Master control unit) it is A2, B2, A1.

If the self-learning procedure fails in one of the control units, Master or Slave, said unit signals the error with its own buzzer and display, at which point both exit the self-learning procedure and the operational use of the entire cabinet is inhibited.

If self-learning is completed successfully on both control units, the Slave control unit (the one that performed the last runs) signals with its own sound the positive outcome of the entire cabinet (when the Master has successfully completed its self-learning, it does not emit a sound, but rather the outcome of the Slave is expected).

10.2.3. Self-learning for 4-door cabinet

The self-learning entry is started as for the cabinet with 1 or 2 doors.

The performance of the procedure is defined as for the cabinet with 1 or 2 doors with the particularity that the learning runs are performed first for the doors connected to the Master control unit and then for the doors connected to the Slave control unit.

Thus, considering any cabinet configuration C7 - C8 - C9 in which the control unit 1 is the Master the learning order is A1, B1, A2, B2.

If the self-learning procedure fails in one of the control units, Master or Slave, this unit signals the error with its own buzzer and display, and both exit the self-learning procedure and the operational use of the entire cabinet is inhibited.

If the self-learning is completed successfully for both control units, the Slave unit (which is the one that performed the last runs) informs by means of a sound the positive outcome of the entire cabinet (when the Master has successfully completed its self-learning it does not emit a sound, but rather the outcome of the Slave is expected).

In the C7 cabinet configuration, if the self-learning of the previous runs has occurred without errors in the Master module but has failed in the Slave module, the Master module can be available for normal operation.
In this case, therefore, the cabinet is available at half service, while for full functionality it is necessary to repeat the self-learning of the entire cabinet.

11. EXECUTION OF SELF-LEARNING

1.1.1. Luminous button self-learning

You can command the start of the self-learning procedure by means of a special sequence using the light button (optional) installed on the side of the cabinet. This button is equipped with an integrated LED light and is controlled by the electronic control unit.

The possibility of using the light button to start self-learning is enabled regardless of the A or B side of its connection to the control unit and the 2-door or 1-door configuration assigned in the control unit.

The command sequence for self-learning entry is as follows.
The operator presses and holds the button. When the button is held down the LED light is switched off.
After 5 seconds with the button pressed, its LED light comes on and the buzzer emits a short beep.
At this point, the operator must release the button within a maximum of 3 seconds. If the operator does not release it within this time, the procedure is cancelled and must be repeated from the beginning to perform it again.
After 3 seconds from the release of the button, its LED light goes out and the buzzer emits another short beep. The operator must press the button within a maximum of 3 seconds and at this point the self-learning start command is generated (indicated by the buzzer and on the display as described in the specific paragraphs).
If the button is not pressed within the maximum time indicated, the procedure is cancelled (it must be repeated from the beginning to perform it again) and child safety mode is activated (described in a specific Section below) in this case and in the presence of an alarm disabling self-learning, the light button is not enabled for self-learning control.

2. CONFIGURATION MAP

2.1. Door handling controls

The commands for managing the operation of a generic door are summarised in the following table. They can all be used interchangeably.
The controls are active only if the cabinet is in the operating status, that is, if there is no configuration error and it has successfully self-learned.
With the door closed, motorised opening is allowed if it is not blocked by another door already open.

Some types of command are NOT enabled if the safety lock is active (see Section 3.1).

2.2. Luminous button (optional)

This is a button that is recessed into the cabinet side. When the door is closed it is covered by the door and it can be operated by pressing on the front of the door near the button.
It is directly accessible with the door open.

Table 4. The button commands the door to release it within 1 second of pressing. If the button is pressed but NOT released within one second, the command is not activated.

This function prevents unintentional movement of the door.

When the door is closed, by pressing the button, the door starts to open until it is in the fully open position.

When the door is fully open, by pressing the button, the door moves to the fully closed position.

If the button is pressed again during movement, the door stops. By pressing the button again, the door starts in the opposite direction to the previous one.

Even after stopping due to an obstacle, the same logic is implemented.

IMPORTANT the controls from the light button are disabled by the SAFETY LOCK command.

2.3. Controls from auxiliary inputs

Such inputs can be connected to a home automation intelligence system (e.g. interface devices for Alexa or Google Home).
The operating logic of these inputs is decided by DIP_SWITCH 7.

DIP SWITCH 7 ON: The commands applied to these inputs will have the same logic as for the light buttons described in the previous paragraph, that is, each pulse is read as a MOVE-STOP-MOVE command.

DIP SWITCH 7 OFF - Each of the inputs only allows the door to run in one direction but does not allow the stop command.
However, stopping is always possible by means of the light button controls. If the door is stopped by a light button, the next auxiliary input command remains allowed in both directions of movement. In the case of a door stopped by an obstacle, only the control in the opposite direction of movement is permitted.

IMPORTANT the commands from auxiliary inputs are NOT disabled by the SAFETY LOCK command.

Command type	**Contact status (On = closed)**	**Actions that can be carried out when the door is running**	**Dip_switch 7**
AUX INPUT_OPENING	Switching ON	Opening	OFF
AUX INPUT_CLOSURE	Switching ON	Closing	OFF
AUX INPUT_OPENING	Switching ON	Opening, Stopping (on opening and closure)	ON
AUX INPUT_CLOSURE	Switching ON	Closing, Stopping (on opening and closure)	ON

2.4. Control of remote control button

The behaviour is the same as the light button described above.

IMPORTANT the commands from the remote control are NOT disabled by the SAFETY LOCK command.

2.5. Control with manual thrust

When the door is stopped, a gentle push starts it moving in the direction of the push.

If the motion of the door is stopped with the button, the motorised movement of the door can be pushed both in the same direction and in the opposite direction to that of the last movement. .

If the force exerted leads to a movement speed higher than the safety level, the process is blocked and subsequently restarted, thus causing a momentary stop of the movement.

IMPORTANT manual thrust controls are disabled by the SAFETY LOCK COMMAND

2.6. Common control with a pair of doors

As seen in the chapter "CABINET CONFIGURATIONS", there are configurations that allow the simultaneous opening and closing of 2 doors.
In such cases, each command input associated with a door acts on the movement (start or stop) of both.

2.7. Door interlocking constraints.

As seen in the "CABINET CONFIGURATIONS" Section, any door opening input is inhibited by the blocking of the other door already open.
In this case it is not possible to have them open together due to physical constraints and to avoid collisions.

2.8. Obstacle detection and anti-crush safety feature

The control unit is able to detect the presence of an obstacle in the path of the door and intervenes by stopping the door (anti crush function)

In the event that the door encounters an obstacle during its movement, it is immediately stopped and then operated in reverse for about 10 cm to facilitate elimination of the obstacle.

The reverse movement cannot be interrupted by a stop command, as it is imposed for safety reasons.

At the end of the reversing manoeuvre, motorised movement is enabled by any command but only in the direction away from the obstacle. Once the door has been restarted, all the controls present can be used again.

If, during the automatic reversing path for obstacle release the door meets another obstacle, it stops and remains stationary.
In this situation, motorised movement from any control input is enabled only in the direction away from the 2nd obstacle. Once the door is restarted, all the controls present can be used again.

In cabinet configurations with a pair of doors with simultaneous movement, when one of the doors meets an obstacle, the movement of the linked door is also interrupted.

2.9. Realignment procedure between the encoder on the door and the closed door sensor in the case of power interruption.

In the case of the installed closed-door sensor, when the power supply is restored following an interruption, the control unit will not see the closed-door sensor active. If the door has remained open prior to the power being suspended, the control unit will require a lock to realign the closed door sensor and the encoder on the door.

In this situation:

The OPENING command from auxiliary input or manual push is not executed, as the control unit does not know the position of the door and is therefore not able to manage the opening correctly.

If users try to operate the door in such ways, they are warned of the prohibition with two short BUZZER beeps.

The CLOSING control by button or by auxiliary input or with manual push activates the motorised closing at a reduced safety speed, which has the purpose of reaching the closed door position detectable by the closed door sensor. Subsequently, the door is available for normal operation.

The door closure for encoder realignment can be stopped by button, but the next command always requires the closure to be resumed in order to complete the process.

When the power supply is restored, the control unit tolerates a small misalignment of a few mm between the encoder position and the closed door sensor. These positions are, however, realigned at the first open-close command.

3. AUXILIARY CONTROL FUNCTIONALITY

3.1. Safety lock for the presence of children or disabled persons

If the auxiliary input for clamps 9-10 (connector CS1) is open, all the door movement commands described in Section 7.1 "DOOR MOVEMENT COMMANDS" are enabled.

If, on the other hand, the auxiliary input for terminals 9-10 (connector CS1) is closed, the types of command indicated in the following table are disabled.

COMMAND TYPE	SAFETY LOCK ACTIVE
Luminous button p1-p2	Disabled
Aux inputs opening closing terminals 4÷9 cs1 connector	Enabled
Remote control buttons	Enabled
Manual push movement	Disabled
Absorption	50 mA (maximum)
Operating temperature	- 20°C ÷ + 55°C

In the "Safety lock active" mode, the possibility of operating from advanced auxiliary inputs (e.g. from a smartphone or voice control) and from the remote control is maintained as these instruments can be placed in positions that are difficult to access.

In "Safety lock active" mode, if the user tries to start the door movement with one of the disabled controls, the BUZZER emits 2 short beeps twice.

The Safety lock mode can be activated with a switch at the user's discretion or can be permanently activated by inserting a jumper between clamps 9 and 10.

WARNING: this input cannot be controlled with RCD (Residual Current Device) circuit breakers, since, if the circuit opens, the safety lock is deactivated.

3.2. Luminous buttons and luminous operating indications

The LED light integrated in the luminous buttons is always on in the normal operation of the cabinet.

It flashes in the following situations:
- The cabinet is disabled for operation and not engaged in self-learning.
- The self-learning procedure is running.
- The associated door needs to perform or is performing the encoder realignment closure.

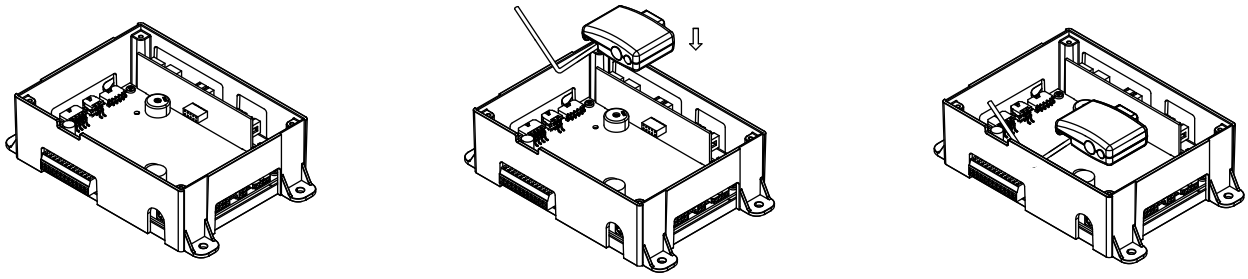
3.3. Auxiliary outputs

Each auxiliary output of the CS1 Connector (clamps 1÷3) must be used to control an external relay that activates or deactivates a device linked to the state of the installed door (A or B).
By way of example, the operator could control a light to be turned on inside the cabinet compartment, that of the moving door.

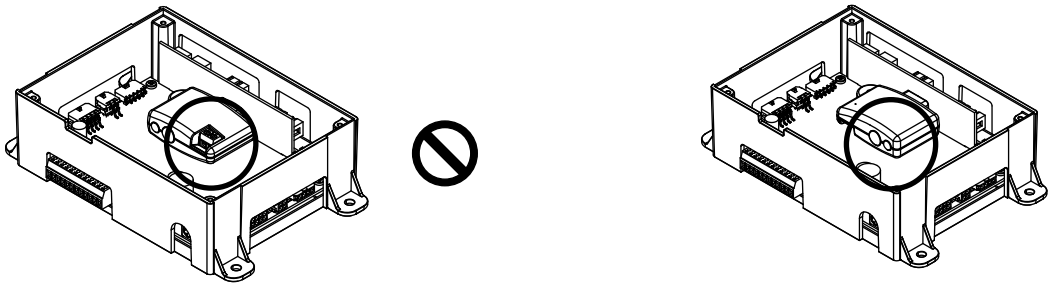
The control logic of the auxiliary output of the CS1 Connector (clamps 1÷3) is:
- ON with the door open even partially;
- OFF with the door completely closed.

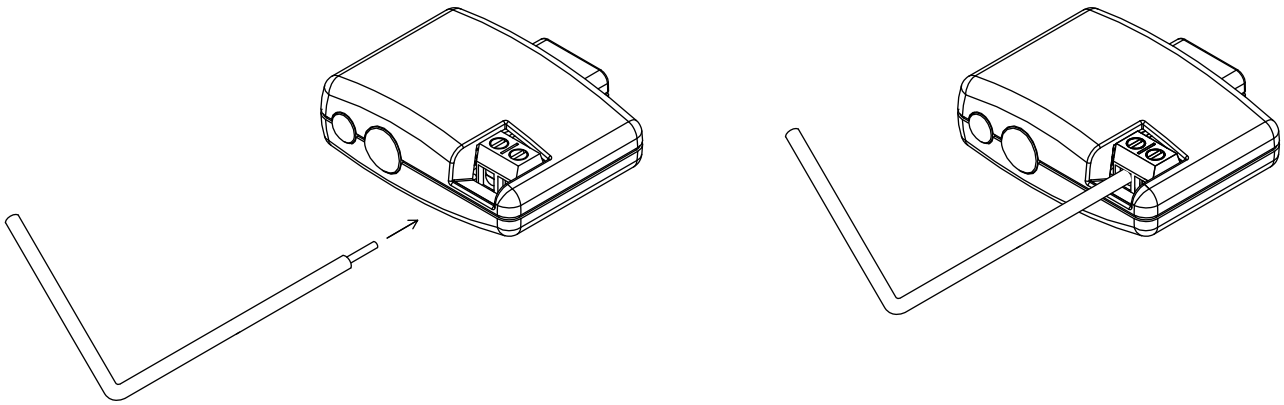
3.4. Control with radio control, programming and characteristics

The control unit can be equipped with a receiving device provided by Bortoluzzi Sistemi (optional) for remote control.
The receiver must be inserted into the CR1 connector inside the control unit.
The operation must be performed in the absence of power.



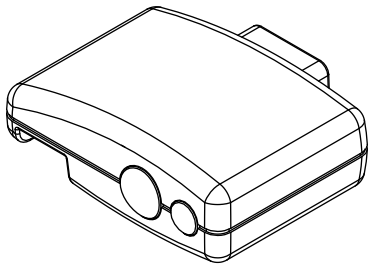
Be careful not to insert the receiver incorrectly and remember to connect the antenna.



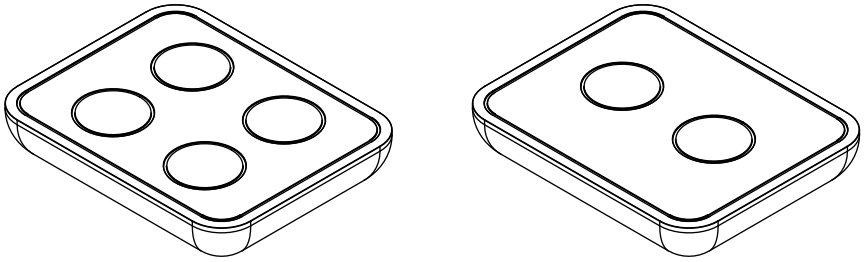


After inserting the receiver, the synchronisation between receiver and radio command must be performed following the operations described below:

1. Press the A key on the receiver and hold until the green B LED lights up.



2. Release the receiver key and within 10 seconds press any key of the remote control and release it after the green LED B (on the receiver) has emitted one of the three flashes provided.
Both remote controls must be configured in the same way.



Technical Characteristics:

Receiver Features	
Feature	Value
Input impedance	50Ω
Receiving frequency	433.92 MHz
Sensitivity	-108 dBm
Absorption	50 mA (maximum)
Operating temperature	- 20°C ÷ + 55°C
Transmitter Features	
Frequency	433.92 MHz (± 100 KHz)
Radiated power	Estimated about 1 mW ERP
Radio Encoding	Rolling code 52 bit FLOR
Operating temp.	- 20°C ÷ + 55°C
Capacity	estimated 200 m; 35 m

4. DIAGNOSTICS AND REPORTING

4.1. General information

The control unit is capable of diagnosing errors or malfunctions.
Each diagnostic is signalled by displaying an error code on the 7-digit display (DY1) and/or with a certain acoustic sequence of the Acoustic Signal (BZ1).

In the following discussion, the diagnostics of the safety functions and the functional diagnostics are specified separately.

In cabinet configurations with more than 2 doors in which 2 control units are involved (configurations C5, C6, C8, C9), the diagnostics described always refer to the specific control unit and the devices connected to it.
The display shows the error code.
The action imposed by the diagnostics (e.g. movement block) will also be extended to the other control unit, not necessarily in error.

In the C7 configuration, the diagnostics of one cabinet block does not affect that of the other.

In all other configurations, the error diagnostics in one module (door) imposes the same action on the other module.

Error Code		
A0 for door **A** **A.0.** for door **B**	**Definition**	**Self-learning error**
	Description	In self-learning mode, the difference in absolute value between the learned length of the opening and closing run exceeds the maximum allowed error (3 mm).
	Possible causes	Incomplete initial closure e.g. due to obstacle then removed during opening. Mechanism problems. Encoder problems.
	Effect	Cabinet operation disabled (self-learning allowed).
	Restore	MANUAL
	Action	Repeat self-learning
A1	**Definition**	**Error reading self-learning information in EEPROM**
	Description	For configuration with closed door sensor, the reading in the memory of the self-learning data performed at the start of the power supply of the control unit failed.
	Possible causes	Disturbance occurred in reading (or in the previous writing phase). Memory component failure.
	Effect	Cabinet operation disabled (self-learning allowed).
	Restore	MANUAL
	Action	Turn off the power to the control unit and then turn it back on. If the error reoccurs, start self-learning. Once the self-learning has been successfully completed, repeat the shutdown and restart of the control unit to check if the problem has been solved.

Error Code		
B0 for door **A** **B.0.** for door **B**	**Definition**	**Instability of reading door speed from encoder measurement**
	Description	Speed reading not stable for at least one of the two channels.
	Possible causes	Exceptional disturbance. Encoder or control unit board fault.
	Effect	Cabinet operation disabled (including self-learning).
	Restore	MANUAL to the next user command of door movement.
B1 for door **A** **B.1.** for door **B**	**Definition**	**Maximum speed error measured between the 2 encoder channels**
	Description	The difference in absolute value between the door speed measured in the 1st encoder channel and that in the 2nd encoder channel exceeds the maximum allowed error.
	Possible causes	Exceptional disturbance. Encoder or control unit board fault.
	Effect	Cabinet operation disabled (including self-learning).
	Restore	MANUAL to the next user command of door movement.

Error Code		
C0	**Definition**	**Cabinet configuration error: no configuration**
	Description	Cabinet type configuration DIP_SWITCHES all OFF.
	Possible causes	Cabinet type configuration DIP_SWITCHES not set. Failure in DIP_SWITCHES.
	Effect	Cabinet operation disabled (including self-learning).
	Restore	MANUAL
	Action	Set up DIP_SWITCH cabinet type configuration and start self-learning.
C1	**Definition**	**Cabinet configuration error: invalid DIP_SWITCH SETTING**
	Description	Cabinet type DIP_SWITCH configuration with setting not associated with a managed configuration.
	Possible causes	Cabinet type configuration DIP_SWITCH not set correctly. Failure in DIP_SWITCHES.
	Effect	Cabinet operation disabled (including self-learning).
	Restore	MANUAL
	Action	Set the cabinet type configuration DIP_SWITCHES correctly and start self-learning.
C2	**Definition**	**Cabinet configuration error: missing connections for all doors configured**
	Description	In self-learning mode, the motor wiring and/or closed door sensor wiring (if required by the configuration) of each door declared in the configuration set at DIP_SWITCH is detected as not present
	Possible causes	Motor wiring and/or closed door sensor not executed or incorrect or faulty.
	Effect	Cabinet operation disabled (self-learning allowed).
	Restore	MANUAL
	Action	Start self-learning after checking/arranging wiring.
C3	**Definition**	**Cabinet configuration error: connection of two doors on single door configuration**
	Description	In self-learning mode, the wiring of two doors is recognised as present and the DIP_SWITCH configuration declares a single door.
	Possible causes	Cabinet type configuration DIP_SWITCH not set correctly. Failure in DIP_SWITCHES.
	Effect	Cabinet operation disabled (self-learning allowed).
	Restore	MANUAL
	Action	Set the cabinet type configuration DIP_SWITCHES correctly and start self-learning.
C4 for door **1** **C.4.** for door **2**	**Definition**	**Cabinet configuration error: 1-door connection missing on 2-door configuration**
	Description	In unrecognised self-learning mode there is motor wiring and/or closed door sensor wiring (if required by the configuration) of one door and the DIP_SWITCH configuration declares two doors.
	Possible causes	Cabinet type configuration DIP_SWITCH not set correctly. Failure in DIP_SWITCHES. Motor wiring and/or closed door sensor not executed or incorrect or faulty.
	Effect	Cabinet operation disabled (self-learning allowed).
	Restore	MANUAL
	Action	Set the cabinet type DIP_SWITCH configuration correctly and/or check and arrange the wiring and start self-learning.
C5	**Definition**	**Cabinet configuration error: change of DIP_SWITCH and/or J_COMPL SETTING**
	Description	The configuration of the DIP_SWITCH and/or J_COMPL is changed with respect to that set in the last successful self-learning.
	Possible causes	User changed DIP_SWITCH and/or J_COMPL. Failure in DIP_SWITCH and/or/ J_COMPL.
	Effect	Cabinet operation disabled (self-learning allowed).
	Restore	MANUAL
	Action	Return DIP_SWITCH and/or J_COMPL to the previous configuration (if changed by mistake). If the error code remains, start self-learning.

Error Code		
C6	**Definition**	**Cabinet configuration error: incorrect DIP_SWITCH setting in at least one control unit for cabinet configurations with 3 or 4 doors (2 control units connected)**
	Description	The configuration of DIP_SWITCHES for cabinet configurations C5÷C9 is not set consistently in the 2 control units connected to each other.
	Possible causes	Cabinet type configuration DIP_SWITCH set differently in the 2 control units. Master/Slave assignment DIP_SWITCH not set correctly.
	Effect	Cabinet operation disabled (self-learning allowed).
	Restore	MANUAL
	Action	Set the cabinet and Master/Slave configuration DIP_SWITCHES correctly and start self-learning.
D0 for door **A** **D.0.** for door **B**	**Definition**	**Closed door sensor reading instability**
	Description	The closed door sensor status reading does not provide a stable value.
	Possible causes	Exceptional disturbance. Closed door sensor failure.
	Effect	Cabinet operation disabled (including self-learning).
	Restore	MANUAL to the next user command of door movement.
D1 for door **A** **D.1.** for door **B**	**Definition**	**Closed door sensor dual channel inconsistency error**
	Description	The N.O. channel and the N.C. channel of the closed door sensor have the same status (inconsistency).
	Possible causes	Door sensor closed fault.
	Effect	Cabinet operation disabled (including self-learning).
	Restore	MANUAL to the next user command of door movement.
D2 for door **A** **D.2.** for door **B**	**Definition**	**Door closed sensor active with door open**
	Description	The closed door sensor is still active when the door is moved from the closed position by more than 50 mm.
	Possible causes	Door sensor closed fault. Magnetised material near the closed door sensor.
	Effect	Cabinet operation disabled (including self-learning).
	Restore	MANUAL to the next user command of door movement.
D3 for door **A** **D.3.** for door **B**	**Definition**	**Door closed sensor deactivated with door closed**
	Description	The closed door sensor is deactivated when the door is in the closed position.
	Possible causes	Door sensor closed fault. Door closed sensor detached or magnet detached.
	Effect	Cabinet operation disabled (including self-learning).
	Restore	MANUAL to the next user command of door movement.
E0 for door **A** **E.0.** for door **B**	**Definition**	**Maximum force on the door in opposition to the motion actuated**
	Description	The force of resistance to the movement of the door related to the measurement of the current circulating in the motor, carried out by the control unit, is found to exceed a safety threshold.
	Possible causes	Obstacle occurred in opposition to the movement of the door.
	Effect	Cabinet operation disabled (including self-learning).
	Restore	MANUAL to the next user command of door movement.
E1 for door **A** **E.1.** for door **B**	**Definition**	**Maximum speed overrun**
	Description	With the door in motorised movement, the speed of the door measured by the control unit exceeds the safety threshold. The door must have a mass such that its kinetic energy is not greater than 1.69 J (regulatory limit).
	Possible causes	Fault of the motor driver with moving door, the user pulls the door in the direction of movement.
	Effect	Cabinet operation disabled (including self-learning).
	Restore	MANUAL to the next user command of door movement.

Error Code		
E2	**Definition**	**Watch Dog SW Protection**
	Description	The execution of the SW programme has fallen into a loop or an instruction situation of excessive duration with respect to the set expiration of the Watch Dog SW.
	Possible causes	Unexpected SW situation.
	Effect	Cabinet operation disabled (including self-learning).
	Restore	MANUAL to the next user command of door movement.
E3	**Definition**	**Failure of the Watch Dog protection device on the control unit board**
	Description	Presence of voltage in the board with anti-surge fuse open.
	Possible causes	Failure of the control unit board of the disconnecting device or its pilot circuit.
	Effect	Cabinet operation disabled (including self-learning).
	Restore	MANUAL to the next user command of door movement.
E4 for door A **E.4.** for door B	**Definition**	**Motor driver in protection status**
	Description	The enable pin of the motor driver is in the low state when commanded high by the microcontroller: protection intervention for overcurrent or thermal of the driver chip itself.
	Possible causes	Overcurrent or thermal protection of the motor driver.
	Effect	Cabinet operation disabled (including self-learning).
	Restore	MANUAL to the next user command of door movement.
E5 for door **A** **E.5.** for door **B**	**Definition**	**Fault of motor driver command control unit board**
	Description	With the controlled motor driver power switch closed (at least one motor required to run), before activating the motorisation commands, a self-diagnosis test of the integrity of the control pins to the motor driver (enable and PWM) is carried out: if one of these pins is detected in the high state, the error is generated.
	Possible causes	Control unit board fault.
	Effect	Cabinet operation disabled (including self-learning).
	Restore	MANUAL to the next user command of door movement.
E6 for door **A** **E.6.** for door **B**	**Definition**	**Maximum door motor time on**
	Description	The door motor is continuously driven in one direction of motion for more than a predetermined maximum time (related to the time of a complete run of the door).
	Possible causes	Control operation fault not determined.
	Effect	Cabinet operation disabled (including self-learning).
	Restore	MANUAL to the next user command of door movement.
I0 for door **A I.0.** for door **B**	**Definition**	**Current measurement input in the motor in probe error**
	Description	The current measurement in the motor is in probe error.
	Possible causes	Current circulating outside the measuring range. Exceptional disturbance. Motor or control unit board fault.
	Effect	Cabinet operation disabled (including self-learning).
	Restore	MANUAL to the next user command of door movement.
I1 for door **A** **I.1.** for door **B**	**Definition**	Current reading instability in the motor.
	Description	The reading of the current circulating in the motor does not provide a stable value.
	Possible causes	Exceptional disturbance. Failure in power supply unit or motor or in control unit board.
	Effect	Cabinet operation disabled (including self-learning).
	Restore	MANUAL to the next user command of door movement.
I2 for door **A I.2.** for door **B**	**Definition**	**Current in the motor null with controlled motor active**
	Description	When the controlled motor is active, its measured current is zero.
	Possible causes	Fault in the current acquisition circuit. Failure of the motor driver or of the motor or its connection.
	Effect	Cabinet operation disabled (including self-learning).
	Restore	MANUAL to the next user command of door movement.

Error Code		
I3 for door **A I.3.** for door **B**	**Definition**	**Current in the motor is not zero when the motor is switched off**
	Description	When the commanded motor is switched off, its measured current is not zero.
	Possible causes	Fault in the current acquisition circuit. Motor driver failure.
	Effect	Cabinet operation disabled (including self-learning).
	Restore	MANUAL to the next user command of door movement.
L0	**Definition**	**Master/Slave control unit communication timeout (cabinet with 2 control units)**
	Description	The Slave control unit does not receive queries from the Master for more than 10 seconds or the Master control unit does not receive responses from the slave control unit for more than 10 seconds.
	Possible causes	Interruption or failure of the communication line between the control units. Exceptional disturbance.
	Effect	In C7 cabinet configuration no action (the Slave control unit cannot execute radio commands). In cabinet configuration other than C7 cabinet operation disabled (including self-learning).
	Restore	MANUAL to the next user command of door movement.
T0	**Definition**	**Temperature inside the control unit above MAX limit**
	Description	The temperature measured by the on-board control unit exceeds the maximum limit (70°C)
	Possible causes	Heat source in the vicinity of the control unit. Overload or failure in the control unit.
	Effect	Cabinet operation disabled (including self-learning).
	Restore	MANUAL
	Action	At the next user command for door movement when the measured temperature has fallen below the reset threshold (60°C).
T1	**Definition**	**Temperature sensor inside the control unit in error**
	Description	The temperature sensor on board the control unit is in probe error.
	Possible causes	Temperature of the control unit outside the measurement range. Exceptional disturbance. Failure of the temperature sensor or other parts of the control unit board.
	Effect	Cabinet operation disabled (including self-learning).
	Restore	MANUAL to the next user command of door movement.
U0	**Definition**	**Motor driver supply voltage above MAX limit**
	Description	With the power supply disconnector controlled motor driver closed (at least one motor required running) the voltage of this power supply measured by the control unit exceeds the maximum limit (26 V).
	Possible causes	- Power supply failure. - Failure in the measuring circuit.
	Effect	Cabinet operation disabled (including self-learning).
	Restore	MANUAL to the next user command of door movement.
U1	**Definition**	**Motor driver supply voltage below MIN limit**
	Description	With the power supply disconnector controlled motor driver closed (at least one motor running required) the voltage of this power supply measured by the control unit is below the minimum limit (22 V).
	Possible causes	Power supply failure. § Lowering of the mains voltage. § Failure in the measuring circuit.
	Effect	Cabinet operation disabled (including self-learning).
	Restore	MANUAL to the next user command of door movement.
U2	**Definition**	Motor driver power voltage reading instability.
	Description	The motor driver supply voltage reading does not provide a stable value.
	Possible causes	- Exceptional disturbance. - Power supply failure or failure in control unit board.
	Effect	Cabinet operation disabled (including self-learning).
	Restore	MANUAL to the next user command of door movement.

Error Code		
U4	**Definition**	**Motor driver supply voltage below MIN limit**
	Description	With the controlled motor driver power disconnector closed (at least one motor running required), the measured motor driver power supply voltage is lower than the control unit power supply voltage by more than a predetermined threshold (5 V).
	Possible causes	- Power supply failure. - Lowering the mains voltage. - Failure in the measuring circuit. - Control unit board fault of the disconnecting device or its pilot circuit. Intervention of the Watch Dog protection device on the control unit board.
	Effect	Cabinet operation disabled (including self-learning).
	Restore	MANUAL to the next user command of door movement.
U5	**Definition**	**Motor driver power voltage reading instability**
	Description	The motor driver supply voltage reading does not provide a stable value.
	Possible causes	- Exceptional disturbance. - Power supply failure or failure in control unit board.
	Effect	Cabinet operation disabled (including self-learning).
	Restore	MANUAL to the next user command of door movement.

4.2. Safety action

In all the diagnostic cases described above in which the reset is declared "MANUAL at the next user command for door movement", it is understood that with a generic command to move a door the error code will disappear and the door will be available for operation once again. The door will start if that command is allowed according to the normal operating regulation and if the diagnosed fault condition is no longer present, otherwise it remains in error.
The manual reset of the alarm is enabled only when, after the safety setting action, the doors have been stopped for more than 2 seconds.

4.3. Display codes

The following table shows all the signals on the DISPLAY, regarding statuses and diagnostics. For details of the specification, please refer to the various pertinent topics set out above.

The "Code" column indicates the alphanumeric code visible on the DISPLAY.

The "Door" column indicates the side of connection to the control unit ("A = LEFT" or "B = RIGHT") of the door relating to that code displayed; if the code does not concern a specific door, "–" is indicated.

Code	Door	Meaningful description
8.	–	(3 flashes): test of the display at the start of the power supply of the control unit.
.	–	(Flashing): cabinet operation enabled (normal state okay).
_	–	Symbol visible for 2 seconds after the lamp test of the display at the start of the power supply of the control unit: configuration of the coplanar door mechanism (single dash in the central position of the digit ► recalls the idea of the arrangement of the doors on 1 level only)
_ _	–	Symbol visible for 2 seconds after the lamp test of the display at the start of the power supply of the control unit: overlapping door mechanism configuration (2 parallel dashes in the upper and lower position of the digit ► recalls the idea of arranging doors on 2 parallel levels)
A	–	Flashing: it is necessary to start the self-learning procedure.
P	–	Safety lock active: temporary display (10 seconds) after door control attempt from input non-enabled command input (manual push or push button on the side).
H	A	Obstacle presence diagnosed: temporary display until the next door movement user command.
H.	B	
C0	–	Cabinet configuration error: no configuration
C1	–	Cabinet configuration error: invalid DIP_SWITCH setting (SC1 connector)
C2	–	Cabinet configuration error: missing connections for all doors configured
C3	–	Cabinet configuration error: connection of 2 doors on single door configuration
C4		Cabinet configuration error: 1-door connection missing on 2-door configuration
C.4.		
C5	–	Cabinet configuration error: change of DIP_SWITCH setting and/or jumper on pin CC1
A0	A	Self-learning error
A.0.	B	
A1	–	Error reading self-learning information in EEPROM

Code	Door	Meaningful description
U0	–	Control unit supply voltage above MAX limit
U1	–	Control unit supply voltage below MIN limit
U2	–	Instability in control unit power supply voltage reading
u4	–	Motor driver supply voltage below MIN limit
u5	–	Motor driver power voltage reading instability
T0	–	Temperature inside the control unit above MAX limit
T1	–	Temperature sensor inside the control unit with error or reading instability
L0	–	Master/Slave communication time-out control unit (cabinet with 2 control units)
E0	A	Maximum force on the door in opposition to the motion actuated
E.0.	B	
E1	A	Maximum active motorised door speed
E.1.	B	
E2	–	Watch Dog SW Protection
E3	–	Failure of the Watch Dog protection device on the control unit board
E4	A	Motor driver in protection status
E.4.	B	
I0	A	Current measurement input in the motor in probe error
I.0.	B	
I1	A	Current reading instability in the motor
I.1.	B	
I2	A	Current in the motor null with controlled motor active
I.2.	B	
I3	A	Current in the engine not zero when the motor is switched off
I.3.	B	
B0	A	Instability of reading door speed from encoder measurement
B.0.	B	
B1	A	Maximum speed error measured between the 2 encoder channels
B.1.	B	
D0	A	Closed door sensor reading instability
D.0.	B	
D1	A	Closed door sensor dual channel inconsistency error
D.1.	B	
D2	A	Door closed sensor active with door open
D.2.	B	
D3	A	Door closed sensor deactivated with door closed
D.3.	B	

If there is more than one error code, by pressing the B1 key it is possible to scroll through all the active errors one at a time.
At the start of the power supply of the control unit, after the lamp test, for 2 seconds an information symbol of the specific door mechanism appears that is configured by the presence or absence of the CC1 J jumper, useful to the installer to confirm the setting made and to diagnose any failure in the jumper in the reading circuit of this input.

4.4. Audible warning

The following table shows the list of acoustic signals emitted by the BUZZER (BZ1). For further details on the specific situations reported, please refer to the various pertinent topics set out above. The buzzer has 3 types of signal , SHORT, MEDIUM and LONG

Buzzer sequence	Description of meaning
3 medium beeps	The self-learning procedure is required and movement will not be possible until the procedure is carried out successfully. (See Section 10.2)
1 long beep	Successful start or end of the self-learning procedure.
1 short beep	Signal to guide the operator in using the light button to command the start of self-learning (see dedicated section for details).
2 short beeps	With closed door sensor installed, after power supply interruption: - On a motorised opening command of a door, it indicates to the user that it is not possible because it must first perform the encoder realignment closure. (See Section 11.9) - On a motorised closing command of a door, the user is notified that this is performed in encoder realignment mode (reduced speed). (See Section 11.9)
2 short beeps 2 times	Indicates that the safety lock is active and the command is not executable. (See Section 12.1) Or by long pressing the button installed on the side of the cabinet (BUTTON_A, BUTTON_B) in order to start the special sequence to command the start of self-learning signals to the user that this special sequence is not enabled because the child safety mode is active.
5 medium beeps	Irregularity diagnosed during motorised movement of a door or self-learning. Or on a motorised movement command of a door, it indicates to the user that it is not possible because there is an irregular condition that does not reset. Or by pressing (for a long time) the SETUP B2_ BUTTON or by long pressing any of the radio control buttons (associated with a present door) to command the start of self-learning, it signals to the user that there is an irregular condition disabling self-learning. Or by long pressing the button installed on the side of the cabinet (BUTTON_A, BUTTON_B) in order to start the special sequence to command the start of self-learning signals to the user that there is an irregular condition disabling self-learning.

FIRMWARE VERSION VIEW

To view the version of the Firmware with which the control unit is programmed, press the B1 BUTTON for a few seconds; on the display digit "- uEr 6 0 6 rEv n n n -" appears in sequence where "uEr" stands for version, "rEv" stands for revision and "n" stands for the generic numerical digit that makes up the revision number (e.g. for revision 001 of the Firmware "- uEr 6 0 6 rEv 0 0 1 -" appears).
The version of the Firmware (606) is its unique fixed identifier, while the revision number is consecutive and associated with the specific revision of the Firmware.

NOTES

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