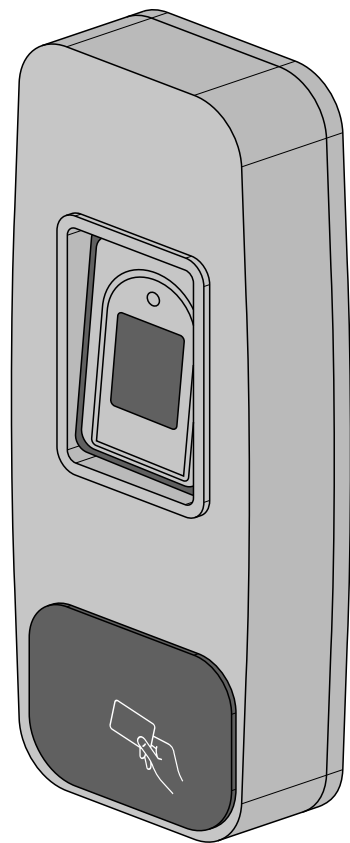




MLB2

INSTALLER AND USER'S MANUAL









00. CONTENT

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01. SAFETY INSTRUCTIONS

	This product is certified in accordance with European Community (EC) safety standards.
	This product complies with Directive 2011/65/EU of the European Parliament and of the Council, of 8 June 2011, on the restriction of the use of certain hazardous substances in electrical and electronic equipment and with Delegated Directive (EU) 2015/863 from Commission.
	(Applicable in countries with recycling systems). This marking on the product or literature indicates that the product and electronic accessories (eg. Charger, USB cable, electronic material, controls, etc.) should not be disposed of as other household waste at the end of its useful life. To avoid possible harm to the environment or human health resulting from the uncontrolled disposal of waste, separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources. Home users should contact the dealer where they purchased this product or the National Environment Agency for details on where and how they can take these items for environmentally safe recycling. Business users should contact their vendor and check the terms and conditions of the purchase agreement. This product and its electronic accessories should not be mixed with other commercial waste.
	This marking indicates that batteries should not be discarded like other household waste at the end of their useful life. Batteries must be delivered to selective collection points for recycling.
	The different types of packaging (cardboard, plastic, etc.) must be subject to selective collection for recycling. Separate packaging and recycle it responsibly.
	This marking indicates that the product and electronic accessories (eg. charger, USB cable, electronic material, controls, etc.) are susceptible to electric shock by direct or indirect contact with electricity. Be cautious when handling the product and observe all safety procedures in this manual.

01. SAFETY INSTRUCTIONS

GENERAL WARNINGS

- This manual contains very important safety and usage information. Read all instructions carefully before beginning the installation/usage procedures and keep this manual in a safe place that it can be consulted whenever necessary.
- This product is intended for use only as described in this manual. Any other enforcement or operation that is not mentioned is expressly prohibited, as it may damage the product and put people at risk causing serious injuries.
- This manual is intended firstly for specialized technicians, and does not invalidate the user's responsibility to read the "User Norms" section in order to ensure the correct functioning of the product.
- The installation and repair of this product may be done by qualified and specialized technicians, to assure every procedure are carried out in accordance with applicable rules and norms. Nonprofessional and inexperienced users are expressly prohibited of taking any action, unless explicitly requested by specialized technicians to do so.
- Installations must be frequently inspected for unbalance and the wear signals of the cables, springs, hinges, wheels, supports and other mechanical assembly parts.
- Do not use the product if it is necessary repair or adjustment is required.
- When performing maintenance, cleaning and replacement of parts, the product must be disconnected from power supply. Also including any operation that requires opening the product cover.
- The use, cleaning and maintenance of this product may be carried out by any persons aged eight years old and over and persons whose physical, sensorial or mental capacities are lower, or by persons without any knowledge of the product, provided that these are supervision and instructions given by persons with experienced in terms of usage of the product in a safe manner and who understands the risks and dangers involved.

- Children shouldn't play with the product or opening devices to avoid the motorized door or gate from being triggered involuntarily.
- If the power cable is damaged, it must be replaced by the manufacturer, after-sales service or similarly qualified personnel to avoid danger.
- The device must be disconnected from the electrical network when removing the battery.
- Ensure that blocking is avoided between the actuated part and its fixed parts due to the opening movement of the actuated part.

WARNINGS FOR TECHNICIANS

- Before beginning the installation procedures, make sure that you have all the devices and materials necessary to complete the installation of the product.
- You should note your Protection Index (IP) and operating temperature to ensure that is suitable for the installation site.
- Provide the manual of the product to the user and let them know how to handle it in an emergency.
- If the automatism is installed on a gate with a pedestrian door, a door locking mechanism must be installed while the gate is in motion.
- Do not install the product "upside down" or supported by elements do not support its weight. If necessary, add brackets at strategic points to ensure the safety of the automatism.
- Do not install the product in explosive site.
- Safety devices must protect the possible crushing, cutting, transport and danger areas of the motorized door or gate.
- Verify that the elements to be automated (gates, door, windows, blinds, etc.) are in perfect function, aligned and level. Also verify if the necessary mechanical stops are in the appropriate places.
- The control board must be installed on a safe place of any fluid (rain, moisture, etc.), dust and pests.
- You must route the various electrical cables through protective tubes, to protect them against mechanical exertions, essentially on

01. SAFETY INSTRUCTIONS

the power supply cable. Please note that all the cables must enter the control board from the bottom.

- If the automatism is to be installed at a height of more than 2,5m from the ground or other level of access, the minimum safety and health requirements for the use of work equipment workers at the work of Directive 2009/104/CE of European Parliament and of the Council of 16 September 2009.
- Attach the permanent label for the manual release as close as possible to the release mechanism.
- Disconnect means, such as a switch or circuit breaker on the electrical panel, must be provided on the product's fixed power supply leads in accordance with the installation rules.
- If the product to be installed requires power supply of 230Vac or 110Vac, ensure that connection is to an electrical panel with ground connection.
- The product is only powered by low voltage safety with control board (only at 24V motors).
- Parts/products weighing more than 20 kg must be handled with special care due to the risk of injury. It is recommended to use suitable auxiliary systems for moving or lifting heavy objects.
- Pay special attention to the danger of falling objects or uncontrolled movement of doors/gates during the installation or operation of this product.

WARNINGS FOR USERS

- Keep this manual in a safe place to be consulted whenever necessary.
- If the product has contact with fluids without being prepared, it must immediately disconnect from the power supply to avoid short circuits, and consult a specialized technician.
- Ensure that technician has provided you the product manual and informed you how to handle the product in an emergency.
- If the system requires any repair or modification, unlock the automatism, turn off the power and do not use it until all safety

conditions have been met.

- In the event of tripping of circuits breakers or fuse failure, locate the malfunction and solve it before resetting the circuit breaker or replacing the fuse. If the malfunction is not repairable by consult this manual, contact a technician.
- Keep the operation area of the motorized gate free while the gate in in motion, and do not create strength to the gate movement.
- Do not perform any operation on mechanical elements or hinges if the product is in motion.

RESPONSABILITY

- Supplier disclaims any liability if:
 - Product failure or deformation result from improper installation use or maintenance!
 - Safety norms are not followed in the installation, use and maintenance of the product.
 - Instructions in this manual are not followed.
 - Damaged is caused by unauthorized modifications
 - In these cases, the warranty is voided.

MOTORLINE ELECTROCELOS SA.

Travessa do Sobreiro, nº29
4755-474 Rio Côvo (Santa Eugénia)
Barcelos, Portugal

SYMBOLS LEGEND:



• Important safety notices



• Useful information



• Programming information



• Potentiometer information



• Connectors information



• Buttons information

02. MLB2

PRODUCT DESCRIPTION

The **MLB2** is suitable for access control of commercial and industrial surfaces, as it can function as a stand-alone access controller, wiegand output keyboard or card reader. It is built in a sturdy, waterproof galvanized (IP68), suitable for internal and external assembling.

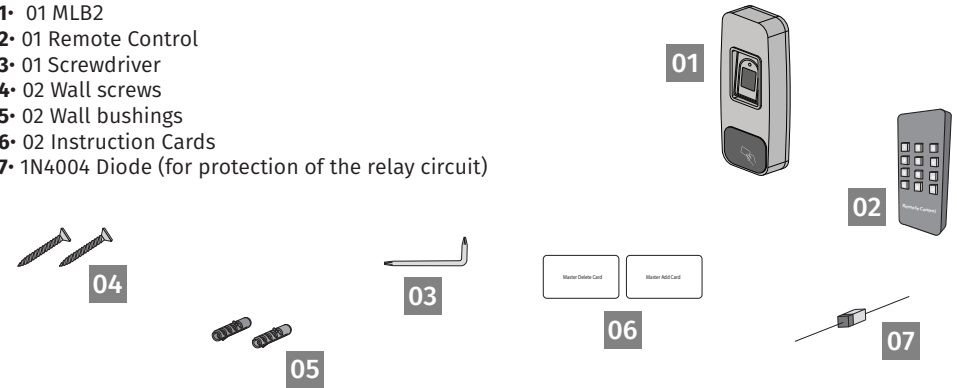
TECHNICAL CHARACTERISTICS

• Power Supply	12Vdc
• Fingerprint capability	1000 Users
• Capacidade de cartão	2000 Users
• Fingerprint sensor	Optical sensor
• Operating Temperature	-40~60°C
• Identification speed	<1s
• FAR	<0.001%
• FRR	<0.01%
• Identification time	<1s
• Operating Humidity	20~90 %
• Reading range	<2 cm
• Static	<45mA
• Electric lock output	<2A
• Alarm output	<5A
• Opening time	0 ~ 99 Seconds (adjustable)
• Dimensions	48x128x26mm (LxAxP)
• Frequency	125 kHz

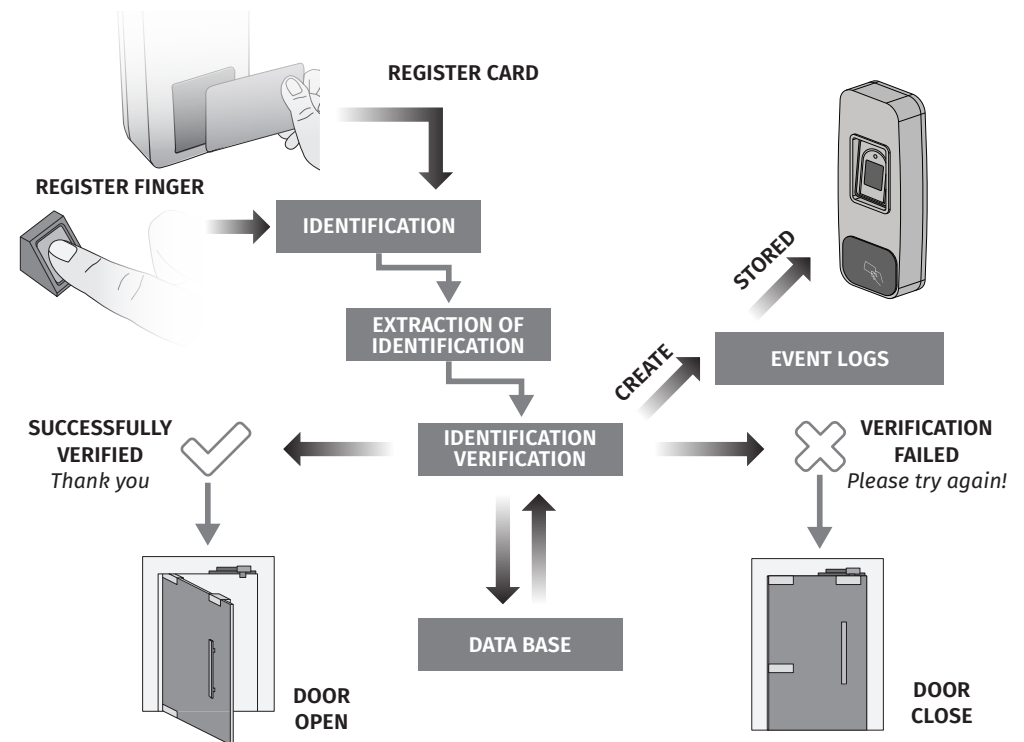
02. MLB2

PACKAGE

- 01• 01 MLB2
- 02• 01 Remote Control
- 03• 01 Screwdriver
- 04• 02 Wall screws
- 05• 02 Wall bushings
- 06• 02 Instruction Cards
- 07• 1N4004 Diode (for protection of the relay circuit)



HOW MLB2 WORKS



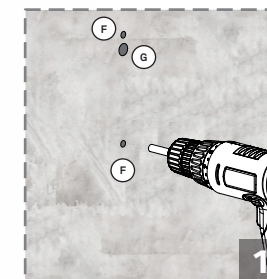
03. INSTALLATION

STEPS TO FOLLOW



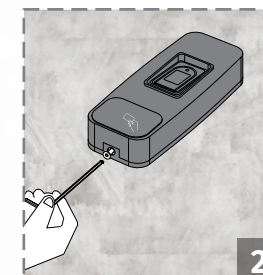
1 DRILL HOLES

Drill holes:
F - MLB2 fixation holes;
G - Hole for cable.



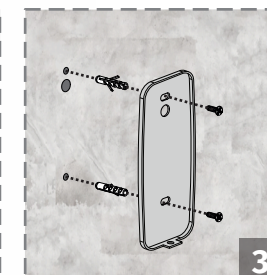
2 REMOVE THE REAR COVER

Using the screwdriver, loosen the screw fully and remove the back cover.



3 FIX THE REAR COVER

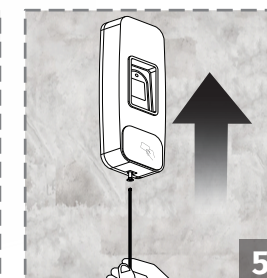
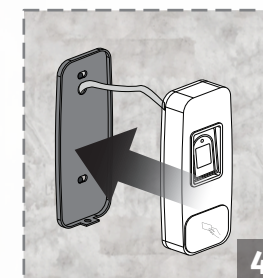
Insert the bushings, position the cover in the holes and secure it with the screws.



4 Insert the cable into the hole.

5 ENCLOSURE THE MLB2

Attach the MLB2 to the rear cover, and tighten the set screws.



04. ACOUSTIC-OPTICAL INSTRUCTIONS

SOUNDS AND LIGHTS

OPERATION STATUS	LED	BELL
Standby	-	-
Enter Programming Mode	Red flashing light	Di
Success	Green light on	Di
Fail	-	Di Di Di
To be programmed	Orange light on	Di
Quit programming	Red light on	Di
Alarm	Fast flashing red light	Alarm Sound

05. PROGRAMMING

PROGRAMMING MODE

To make any programming or change of operating parameters, you must enter **Programming Mode** (red light on). While in Programming Mode, you can make any changes you want without having to go out and re-enter.

After all the settings are completed, exit the Programming Mode to the Stand-By mode (flashing red light) in order to use the device normally.

OPERATIONS	INSTRUCTIONS
• Enter Programming Mode	* Master Code # (The default master code is 123456)
• Exit Programming Mode	*

INITIAL SETTING

At first use of the device, you must always change the master code for security, and set the operating mode for authorization of access.

OPERATIONS	INSTRUCTIONS
01• Enter Programming Mode	* Master Code #
02• Change Master Code	0 New Code # New Code #
03• Add fingerprint	1 Fingerprint Repeat Fingerprint #

05. PROGRAMMING

INITIAL SETTING

04• Add card	1 Read card #
05• Exit Programming Mode	*

Master Code

This code gives you access to the Programming Mode.

Without it, you will not be able to do any user programming or device changes.

The default Master Code is **123456**.

To change the master code, enter programming mode and select the following values:

OPERATIONS	INSTRUCTIONS
• Change Master Code	0 New Code # New Code #

Depois de alterado, pode sair do modo de programação.

USERS

This device can record up to 3000 users, with or without associated card and / or fingerprint.

Each user is recorded by an ID between 1 and 3000, selected at the time of recording, or with automatic assignment when adding multiple users in a row.

Note:

- IDs **997 and 998** are for **authorized fingerprints**.
- IDs **999 and 1000** are for **master fingerprints that can add or delete fingerprints**.
- IDs **2999 and 3000** are for **authorized cards**.

• ID	User number between 1 and 1000
• Fingerprint	User number between 1000 and 3000
• Card	Card with embedded code



Must keep registration of ID's and user name for later visualization.

05. PROGRAMMING

DOOR OPENING

To unlock the door you can use the Fingerprint or Card or both (depends on the Operating Mode).

OPERATIONS	INSTRUCTIONS
• User with fingerprint	Read Fingerprint
• User with card	Read Card

ANTI THEFT ALARM

The device uses an LDR (light dependent resistor) as an anti-theft alarm. If the keyboard is removed from the cover, the tampering alarm will be activated.

OPERATING MODE

This is the validation method that the device uses to authorize access to users. To make changes, you must enter programming mode.

OPERATIONS	INSTRUCTIONS
• Card Input	4 0 #
• Card or Fingerprint Input	4 2 #
• Fingerprint Input	4 3 #
• Card and Fingerprint Input	4 4 #



The default validation mode on the device is 4 2 # . Entry with Card or Fingerprint.

05. PROGRAMMING

OPERATIONS

*These operations can only be done in **Programming Mode**.*

OPERATIONS	INSTRUCTIONS	
• Add User with Fingerprint	With Auto ID	1 Fingerprint Repeat Fingerprint #
	With Specific ID	1 User ID # Fingerprint Repeat Fingerprint #
• Add User with Card	With Auto ID	1 Read Card # or 1 Enter 8/10 Card Numbers #
	With Specific ID	1 User ID # Read Card or 1 User ID # Enter 8/10 Card Numbers #
• Delete User with Fingerprint		2 Fingerprint #
• Delete User with Card		2 Read Card # or 2 Enter 8/10 Card Numbers #
		2 User ID #

05. PROGRAMMING

DELETE ALL USERS

These operations can only be done in **Programming Mode**.

OPERATIONS	INSTRUCTIONS
• Delete all users	<p>2 Master Code #</p> <p>(This device allows you to delete all users recorded with card, Fingerprint or both at once).</p>

DOOR RELAY SHOOTING TIME

These operations can only be done in **Programming Mode**.

OPERATIONS	INSTRUCTIONS	
• Door relay shooting time	Pulse Mode	<p>4 1 a 99 # *</p> <p>(The activation time of the relay for door opening can be set between 1 and 99 seconds).</p>
	Close Mode	<p>3 0 #</p> <p>(Switching the relay tripping time on / off).</p>

DOOR WARNING OPEN TOO LONG TIME (DOTL)

When used with an optional magnetic contact or magnetic contact built into the lock, if the door is normally opened but not closed after 1 minute, the internal doorbell will be active automatically to remind people to close the door and continue to ring for 1 minute until it turns off automatically. By default, Open Door Detection is disabled (60 #).

05. PROGRAMMING

DOOR WARNING OPEN TOO LONG TIME (DOTL)

These operations can only be done in **Programming Mode**.

OPERATIONS	INSTRUCTIONS
• Disable open door detection (default).	6 0 #
• Enable open door detection	6 1 #

To turn off the alarm when it has been triggered, perform this step in Stand-By mode:

OPERATIONS	INSTRUCTIONS
• Turn off the Alarm	5 0 #

NOTICE OF FORCED DOOR OPENING

When used with an optional magnetic contact or magnetic contact built into the lock, if the door is forced to open or is opened after 20 seconds, the internal bell and the alarm output will be active. The alarm output time is adjustable from 1-3 minutes, the default time is 1 minute.

These operations can only be done in **Programming Mode**.

OPERATIONS	INSTRUCTIONS
• Set the alarm output time (Select between 1, 2 or 3 minutes).	5 (1-3) #

To turn off the alarm when it has been triggered, perform this step in Stand-By mode:

OPERATIONS	INSTRUCTIONS
• Turn off the Alarm	5 0 #

05. PROGRAMMING

ALARM OUTPUT OPTIONS

If there are 10 invalid cards or 10 incorrect PINs within 10 minutes, the keypad will lock for 10 minutes or the alarm and internal bell will be active for 10 minutes depending on the option selected. By default, the Alarm is unlocked (54 #).

*These operations can only be done in **Programming Mode**.*

OPERATIONS	INSTRUCTIONS
• Alarm unlocked (by default)	5 4 #
• Block for 10 minutes	5 5 #
• Enable alarm, a Valid Card or Fingerprint	5 6 #

SETTING THE DEFAULT SETTINGS

- 01 • Turn off the power to the device.
- 02 • Continuously press the Output Button connected to the MLB2 and reconnect the power to the device.
- 03 • When you hear the "Di Di" alarm, release the Exit Button, the light will turn orange.
- 04 • Pass one of the two master cards supplied in 10 seconds and the light will turn red.

The system has returned to factory settings.

Note that only the installer data is restored. User data will not be reset.

CONFIGURE AN ID IN MLB2

*These operations can only be done in **Programming Mode**.*

OPERATIONS	INSTRUCTIONS
• Set an ID in MLB2	7 (0~255) #

05. PROGRAMMING

CONFIGURE AN ID IN MLB2

If you use an MLB2 as a Wiegand reader, you can set the ID of your device for recognition. When you insert the valid Fingerprint, it will pass a virtual card number as the Wiegand 26 output path. For example, if you set your device ID to 255 and the Fingerprint User ID is 3, it will virtual card number as 25500003.

THROUGH OPERATION

The MLB2 can function as a wiegand output reader for the controller. Below the operations for adding fingerprint users:

- 01 • Add Fingerprint in MLB2
- 02 • Operate the controller to enter the Add Card Users and read the Fingerprint added in the MLB2 corresponding to the User ID, it will generate a virtual card number and send to the controller to save this number. So Fingerprint will be added successfully.

*These operations can only be done in **Programming Mode**.*

OPERATIONS	INSTRUCTIONS
• Set the Wiegand keyboard bits	7 (26~44) #
• Disable the Wiegand keyboard	8 0 #

LOCKOUT OPERATION

The MLB2 supports the lock function. It is two-way two-door device and used primarily for banks, prisons and other places where top-level security is required.

- 01 • Add Users to both MLB2
- 02 • Set both readers to the lock function.

*These operations can only be done in **Programming Mode**.*

OPERATIONS	INSTRUCTIONS
• Enable lock function	6 2 #
• Disable lock function	6 3 #

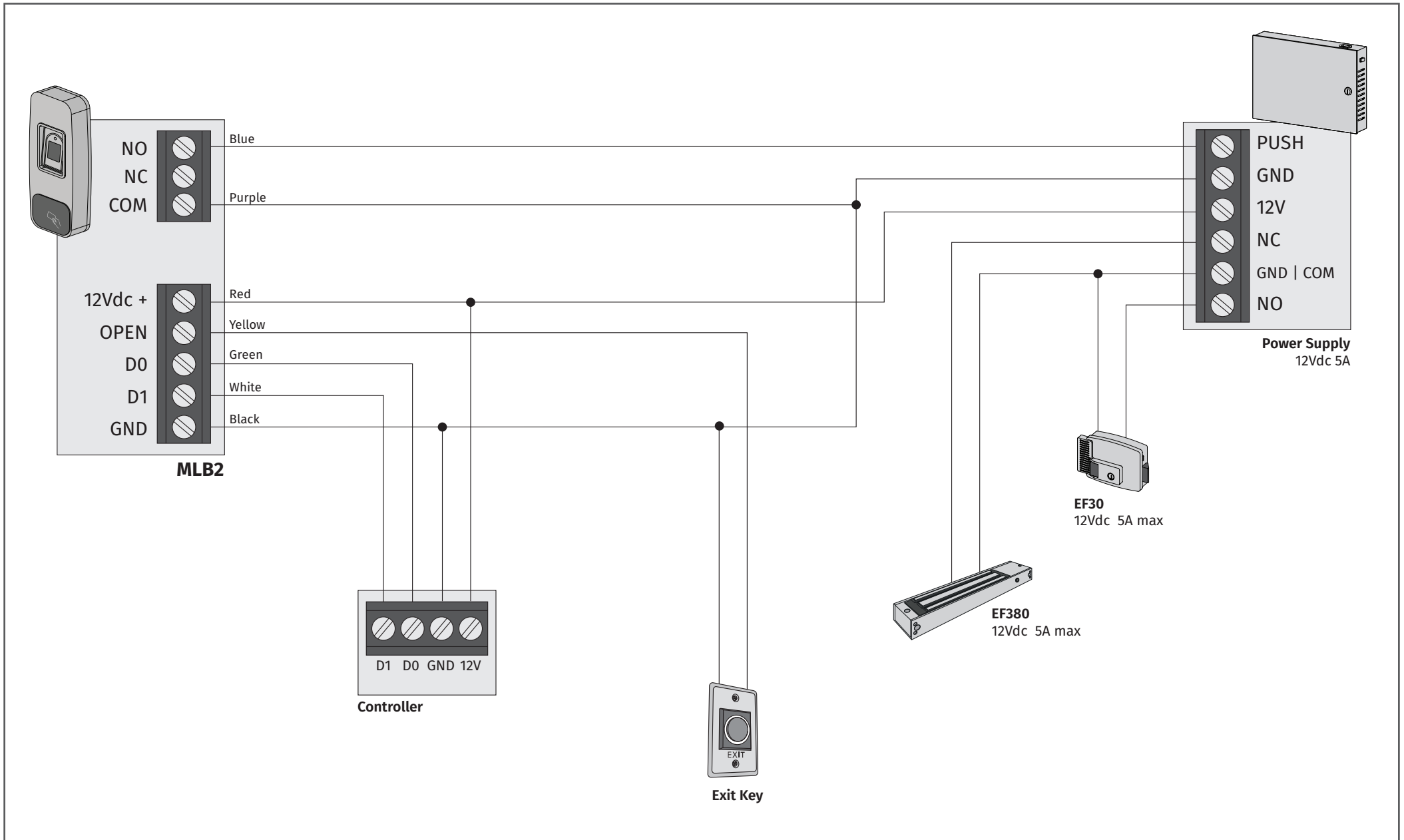
06. CONNECTIONS

DESCRIPTION OF THE MAIN CABLE

Line sequence	Marks	Color	Function description
1	NO	Blue	NO Relay
2	NC	Orange	NC Relay
3	COM	Purple	Common Relay
4	DC	Red	Power Input 12Vdc (Input + DC)
5	OPEN	Yellow	One end of the output button (Output button of the other end connected GND)
6	D0	Green	Output line WG D0
7	D1	White	Output line WG D1
8	GND	Black	Power Input 12Vdc (Input - DC)

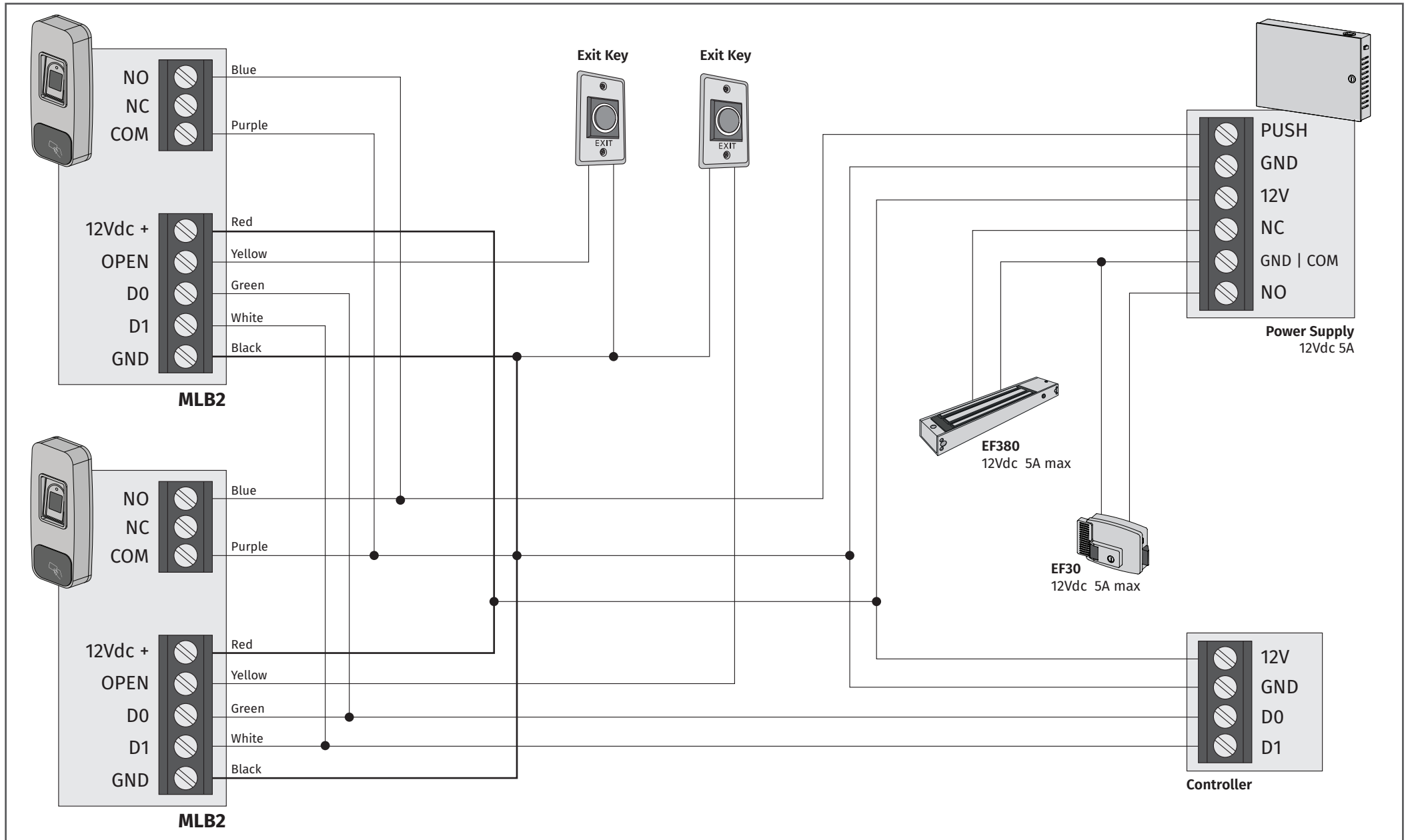
06. CONNECTIONS

CONNECTION SCHEME - POWER SUPPLY



06. CONNECTIONS

CONNECTION SCHEME - MLB2 FOR ANOTHER MLB2



06. TROUBLESHOOTING

INSTRUCTIONS FOR FINAL CONSUMERS / SPECIALIZED INSTALLERS

Anomaly	Procedure
FINGERPRINT CAN NOT BE READ OR IT TAKES TOO LONG	<ol style="list-style-type: none">1. Check whether a finger or fingerprint sensor is stained with sweat, water, or dust2. Retry after wiping off finger and fingerprint sensor with dry paper tissue or a mildly wet cloth.3. If a fingerprint is way too dry, blow on the finger and retry.
FINGERPRINT IS VERIFIED BUT AUTHORIZATION KEEPS FAILING	<ol style="list-style-type: none">1. Check whether the user is restricted by door zone or time zone.2. Check with administrator whether the enrolled fingerprint has been deleted from the device for some reason.
AUTHORIZED BUT DOOR DOES NOT OPEN	<ol style="list-style-type: none">1. Check whether the lock duration is set to appropriate minutes which opens the lock.