



# MHACA12PMBE

USER/INSTALLER MANUAL



# 00. CONTENT

## INDEX





<b>01. SAFETY INSTRUCTIONS</b>	<b>2B</b>
<b>02. PRODUCT</b>	
PRODUCT DESCRIPTION	4B
TECHNICAL SPECIFICATIONS	4B
BASIC CONTENT	4B
OPERATING SCHEME (EXTERNAL MANAGEMENT SYSTEM)	5A
OPERATING SCHEME (INDEPENDENT)	5B
DIMENSIONS AND CONNECTORS DIAGRAM OF THE PRODUCT	6
<b>03. INSTALLATION</b>	
WALL MOUNTING	7A
<b>04. CONNECTORS AND DIP SWITCH</b>	
DESCRIPTION OF CABLES	7B
DIP SWITCH CONFIGURATION	8
<b>05. CONNECTION SCHEME</b>	
SYSTEM SETUP	9
SCHEME FOR USE WITH ACU-30	10
ELECTRICAL LOCK SCHEME	11A
BELL SCHEME	11B
ELECTRIC LOCK SCHEME	12A
SCHEME OF THE EXIT BUTTON AND DOOR SENSOR	12B
<b>06. STANDALONE PROGRAMMING</b>	
INITIAL SETTING	13A
ADD CARD	13A
REMOVE CARD	13A
REMOVE ALL CARDS	13A
SET DOOR OPEN TIME	13B
SET DOOR SENSOR DETECTION TIME	13B
ADVANCED FUNCTIONS	14A
ALARM BUTTON AGAINST VIOLATIONS	14A
CARD CHECK	14B
EXIT BUTTON AND DOOR SENSOR	14B
ENTER DATE	15A
ENTER HOUR	15A
KEYBOARD	15A

# 00. CONTENT

## INDEX

SAVE INVALID CARD	15B
MASTER CODE	15B
ALARM DISARM CARD OR CODE	16A
OPERATING MODE	16A
SLAVE READER	16A
RELAY MODE	16B
RESET TO FACTORY VALUES	17A
<b>07. REQUIREMENTS</b>	
CONNECTION CABLES	17A
<b>08. COMPONENT TEST</b>	
DEVICE TEST	17B
<b>09. TROUBLESHOOTING</b>	
INSTRUCTIONS FOR FINAL CONSUMERS/SPECIALIZED TECHNICIANS	18

# 01. SAFETY INSTRUCTIONS

CE	This product is certified in accordance with European Community (EC) safety standards.
RoHS	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.

## 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.

## 01. SAFETY INSTRUCTIONS

- 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

- 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

## 01. SAFETY INSTRUCTIONS

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



• Potentiometer information



• Useful information



• Connectors information



• Programming information



• Buttons information

## 02. PRODUCT

### PRODUCT DESCRIPTION

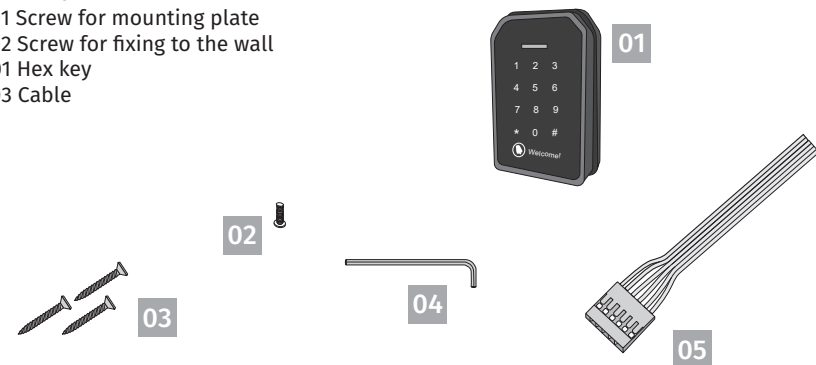
Reader for external use with backlit numeric keypad that is part of the control and management of access to a given location.

### TECHNICAL SPECIFICATIONS

• Power supply	12Vdc 1A
• Current	300mA (max)
• Isolation	IP44
• Communication	RS485 and TCP/IP
• Technologies	Bluetooth and Mifare Card
• Card Reading Format	Mifare (13.56 MHz)
• Reading range	3-5 cm
• ID setting	DIP Switch
• Operating Temperature	-25°C to 55°C
• Operating Humidity	20% ~ 80%
• Dimension	80x120x27mm (LxAxP)

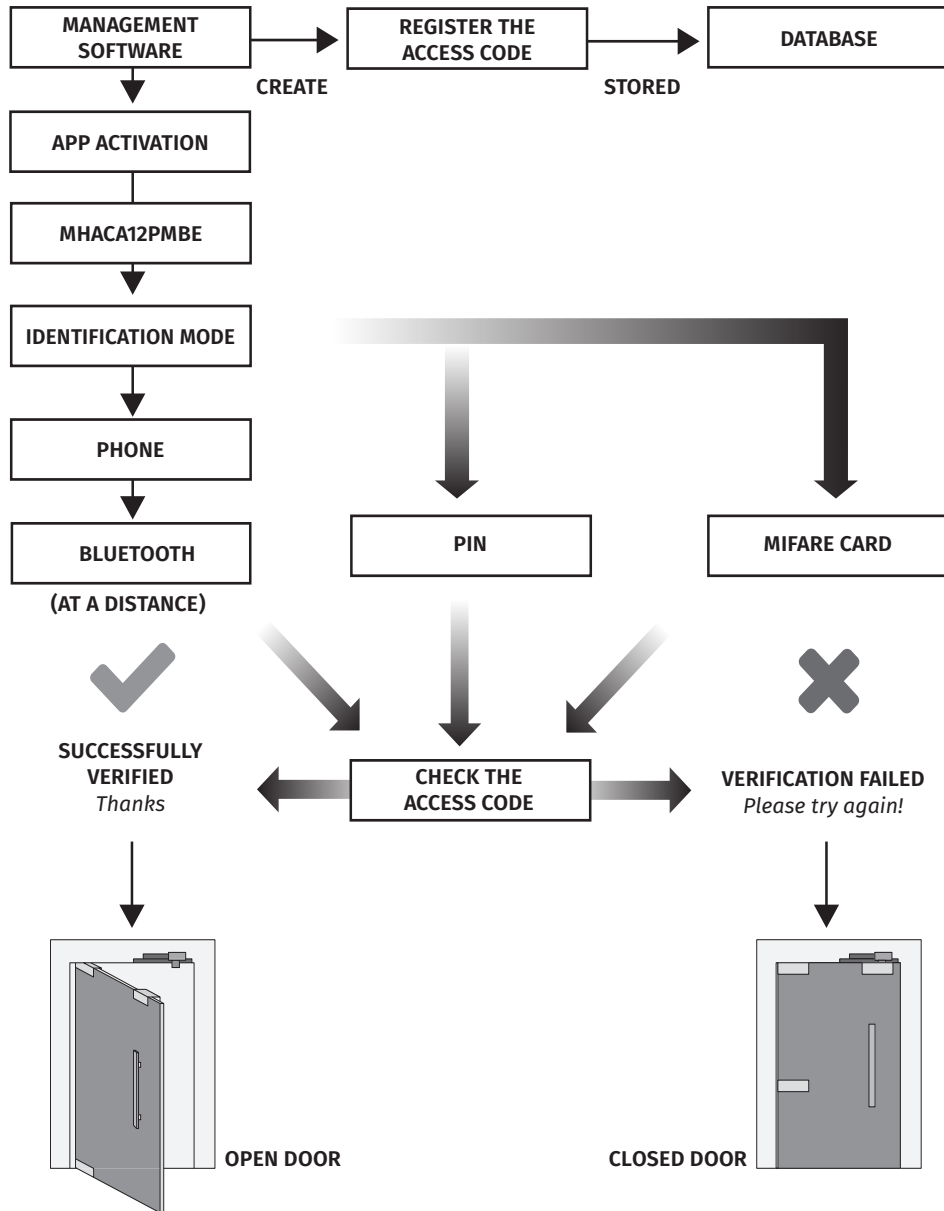
### BASIC CONTENT

- 01 • 01 MHACA12PMBE
- 02 • 01 Screw for mounting plate
- 03 • 02 Screw for fixing to the wall
- 04 • 01 Hex key
- 05 • 03 Cable



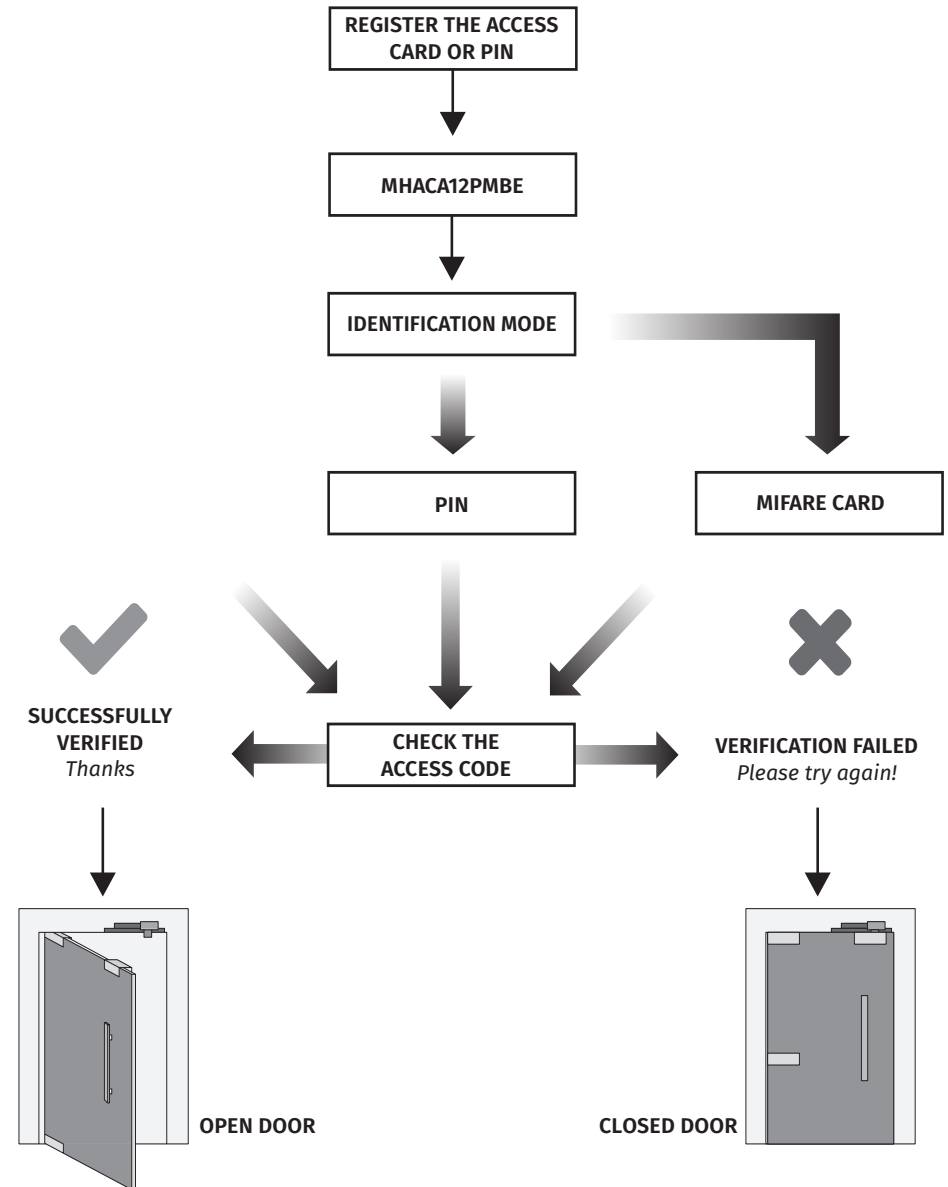
## 02. PRODUCT

### OPERATING SCHEME (EXTERNAL MANAGEMENT SYSTEM)



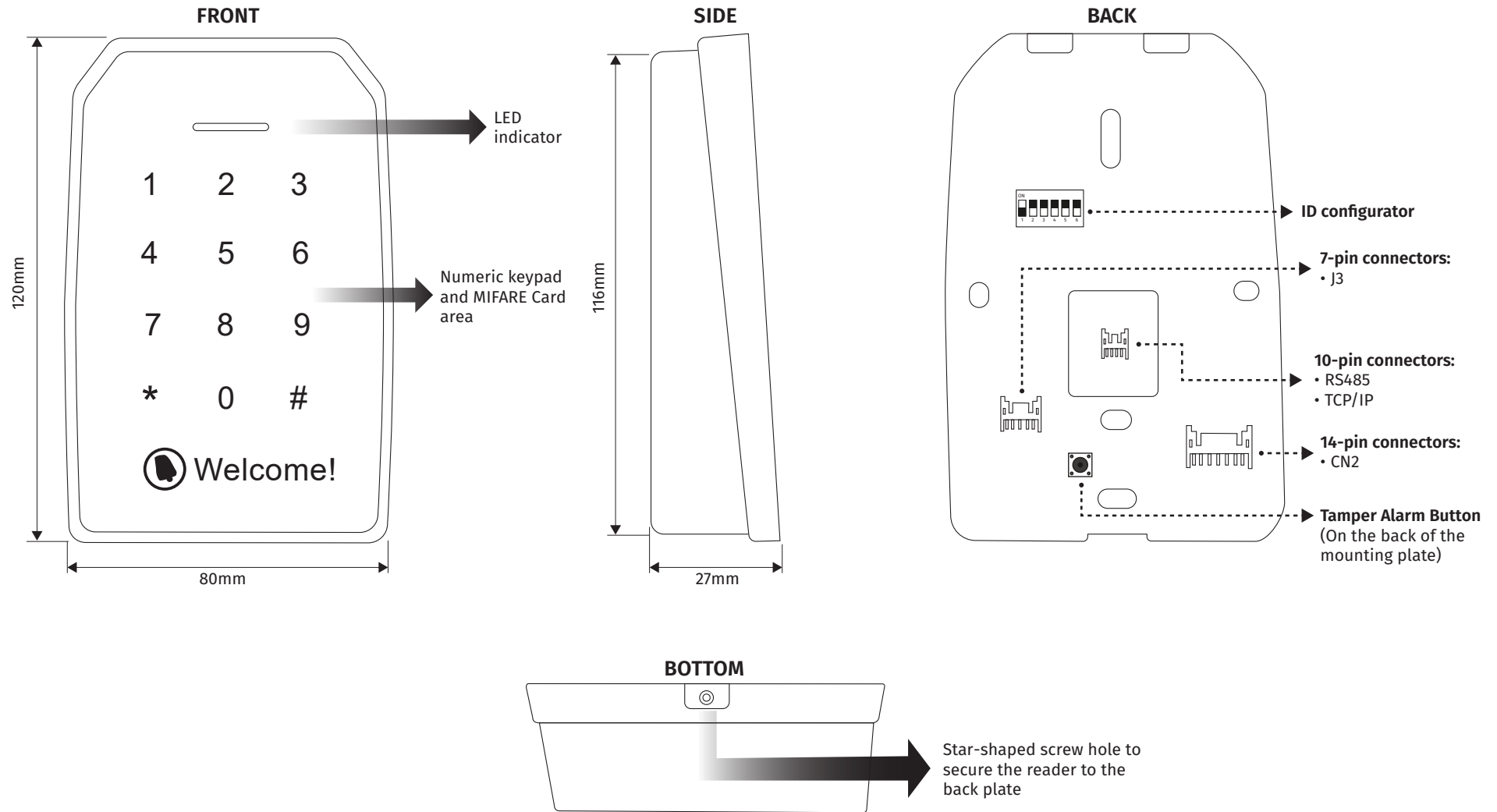
## 02. PRODUCT

### OPERATING SCHEME (INDEPENDENT)



## 02. PRODUCT

### DIMENSIONS AND CONNECTORS DIAGRAM OF THE PRODUCT



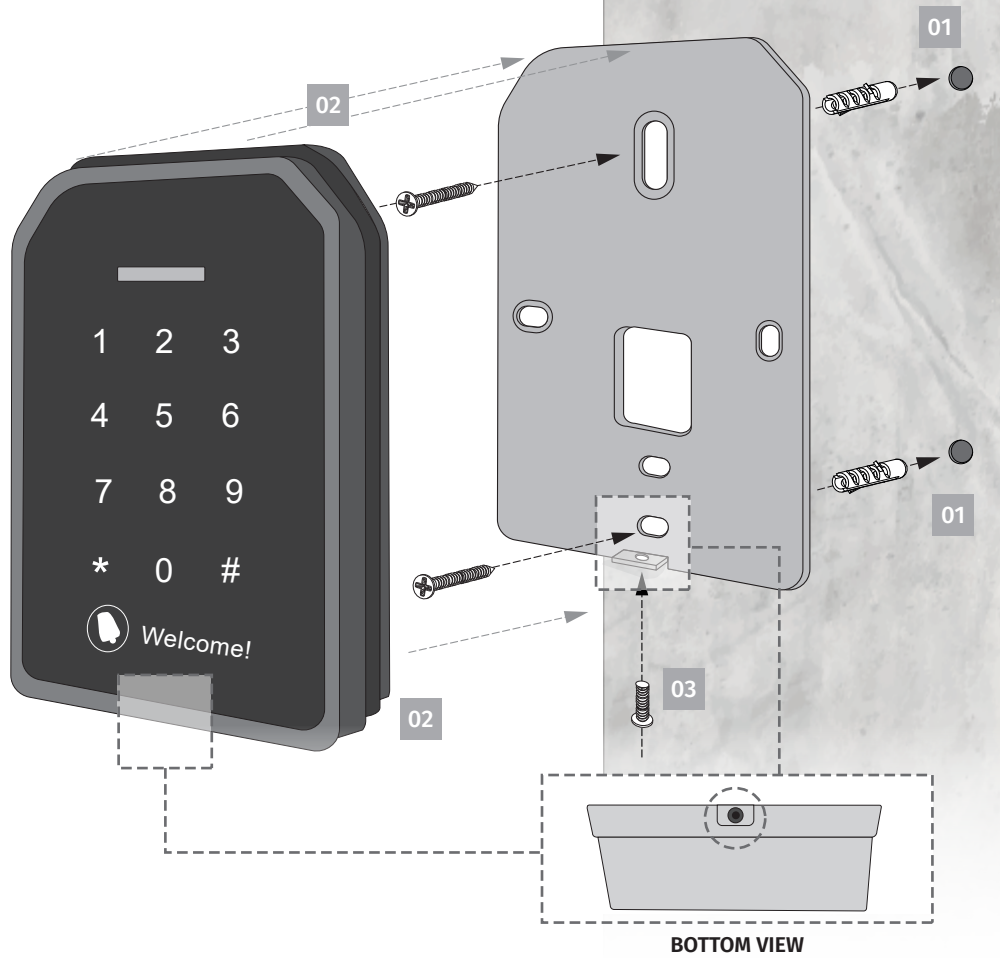
## 03. INSTALLATION

### WALL MOUNTING

**01** Fix the back to the wall using the wall mount screws.  
(Use your own bushings for this purpose)

**02** Snap the MHACA12PMBE on the back.

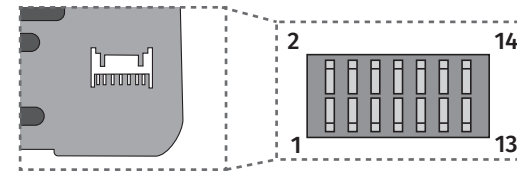
**03** Fix the MHACA12PMBE and the back using a star-shaped screw.



## 04. CABLES AND CONNECTORS

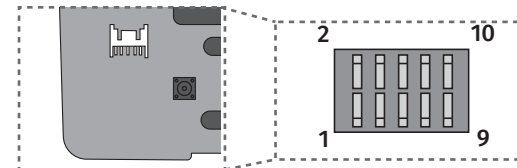
### DESCRIPTION OF CABLES

#### • CN2



12V DC	Red	1	2	Orange	Exit Button
GND	Black	3	4	Brown	Door Sensor
RS485 +	Yellow	5	6	Purple	Relay 1 NC
RS485 -	Blue	7	8	White	Relay 1 COM
GND	Gray	9	10	Green	Relay 1 NO
N/A	Pink	11	12	Red and white	Relay 2 NC
Relé 2 COM	Orange and white	13	14	Gray and white	Relay 2 NO

#### • J3



DATA/W0	Brown and white	1	2	Green	Relay 3
CLK/W1	Blue and white	3	4	Pink and white	Relay 4
N/A	Black and white	5	6	Orange and white	N/A
Alarme	Green and white	7	8	Purple	N/A
N/A	Gray and white	9	10	Black	GND























# 04. DIP SWITCH

## DIP SWITCH CONFIGURATION

To the control board be able to identify the task of each readers interconnected in an access control system, it is necessary that each of these devices has a unique ID. **This ID is crucial to identify the task that each device performs and which port/access it is installed on.**

The definition is done through the dip switch board on the back of each reader, according to the following table:

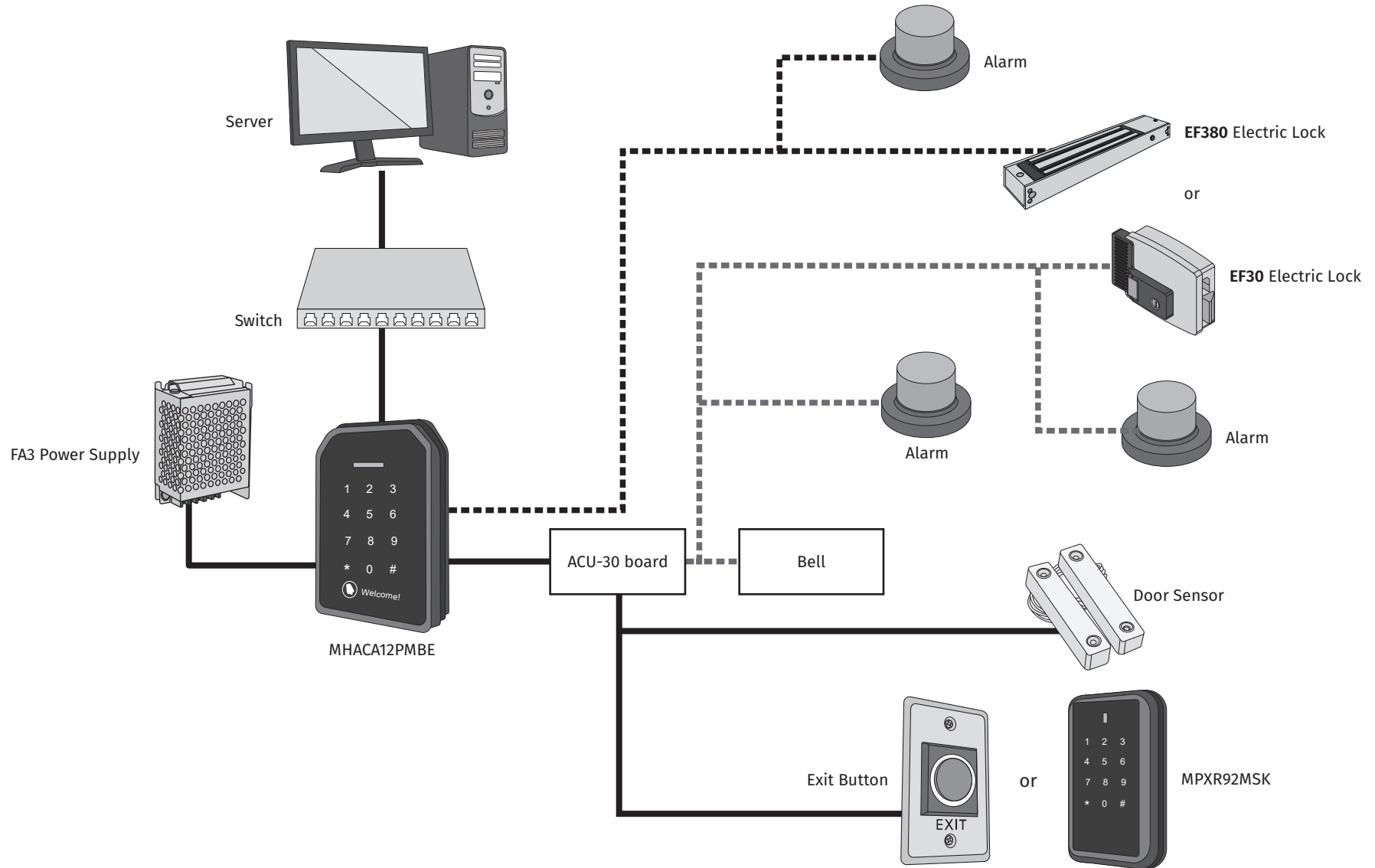
ID	Dip switch	Door	Function	ID	Dip switch	Door	Function
Without ID		-	-	10		Door 5	Exit
1		Door 1	Entrance	11		Door 6	Entrance
2			Exit	12			Exit
3		Door 2	Entrance	13		Door 7	Entrance
4			Exit	14			Exit
5		Door 3	Entrance	15		Door 8	Entrance
6			Exit	16			Exit
7		Door 4	Entrance	17		Door 9	Entrance
8			Exit	18			Exit
9		Door 5	Entrance	19		Door 10	Entrance



• Connecting two or more devices with the same ID to a switch will create a communication conflict and none will work correctly.

# 05. CONNECTION SCHEME

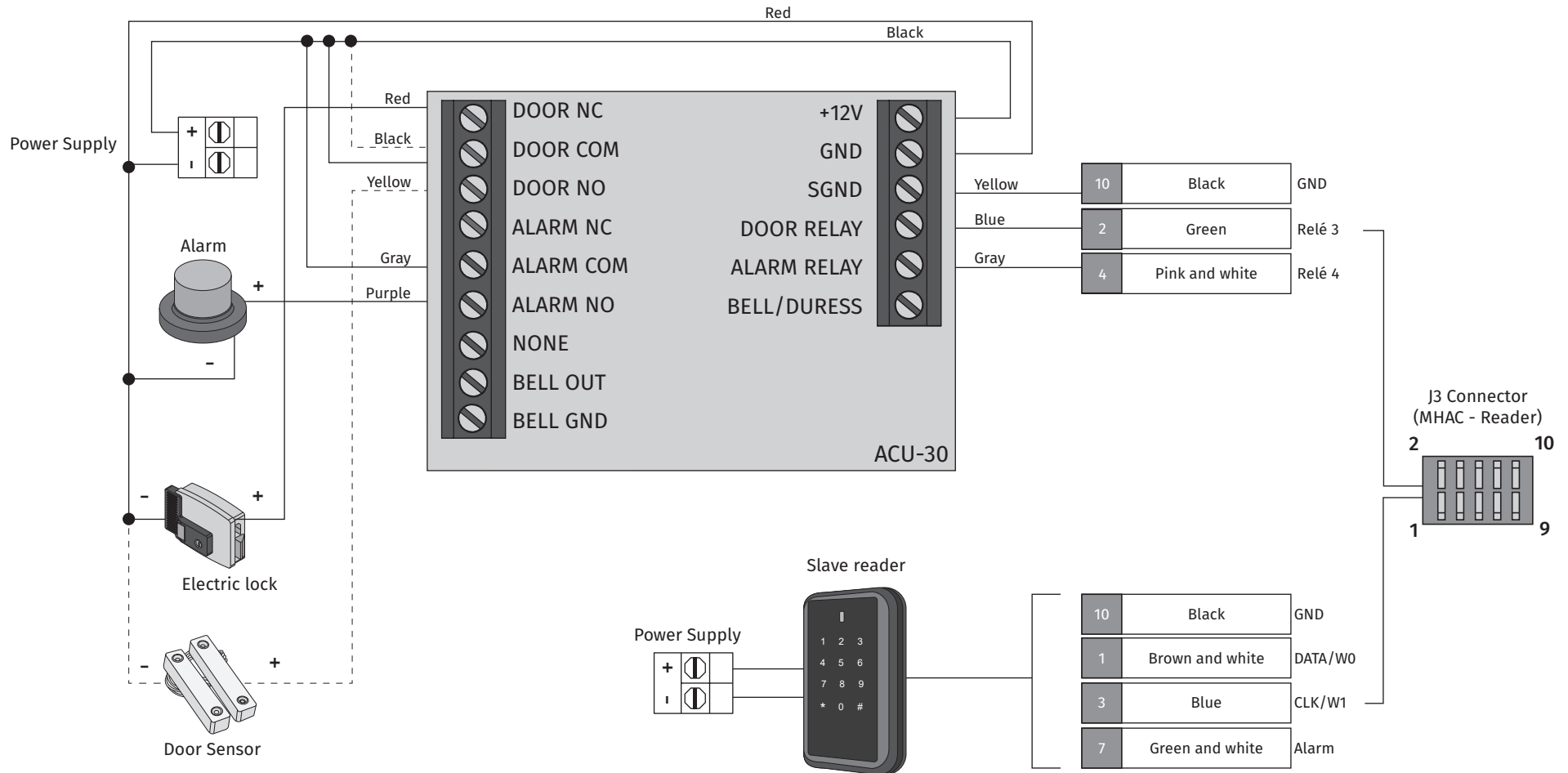
## SYSTEM SETUP



# 05. CONNECTION SCHEME

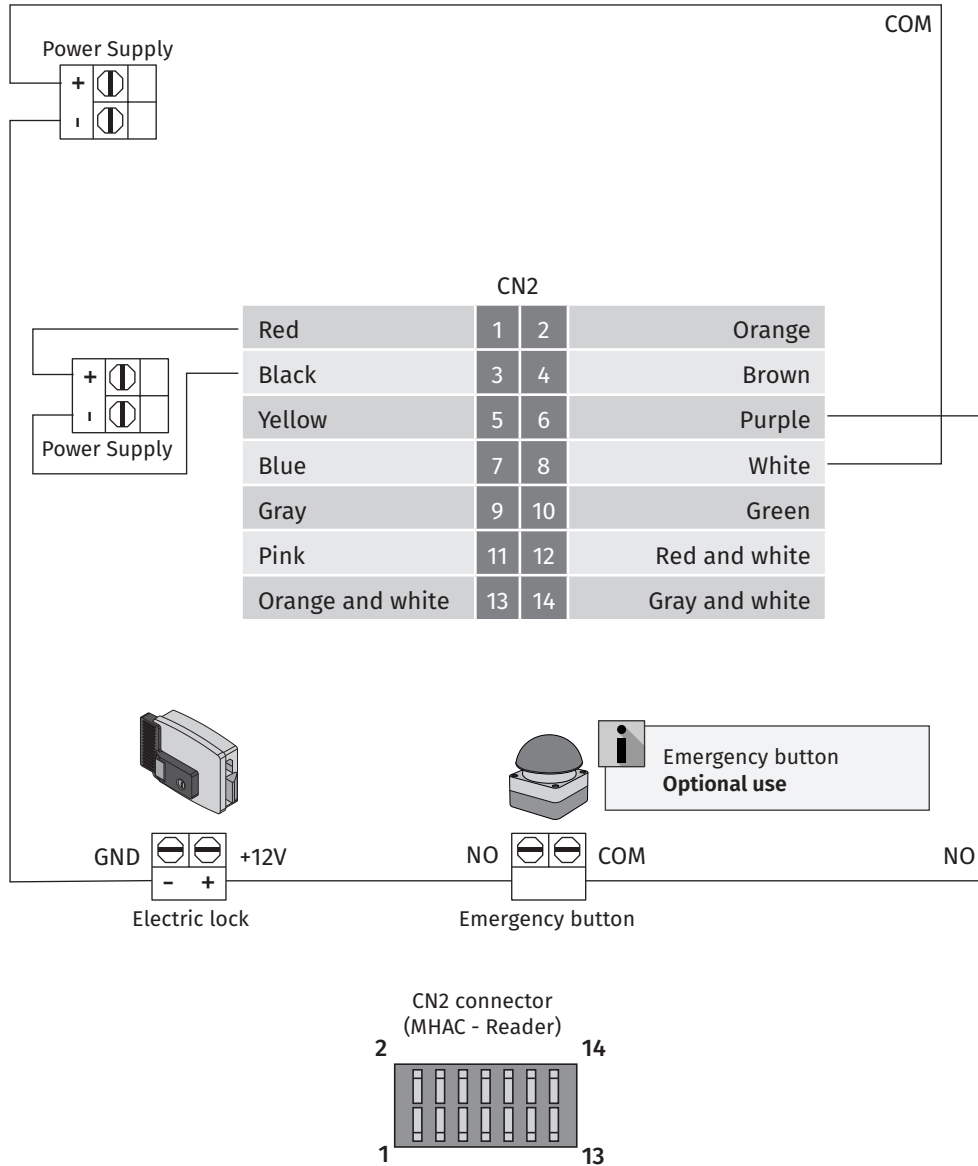
## SCHEME FOR USE WITH ACU-30

The diagram below is for both modes of operation of relays.



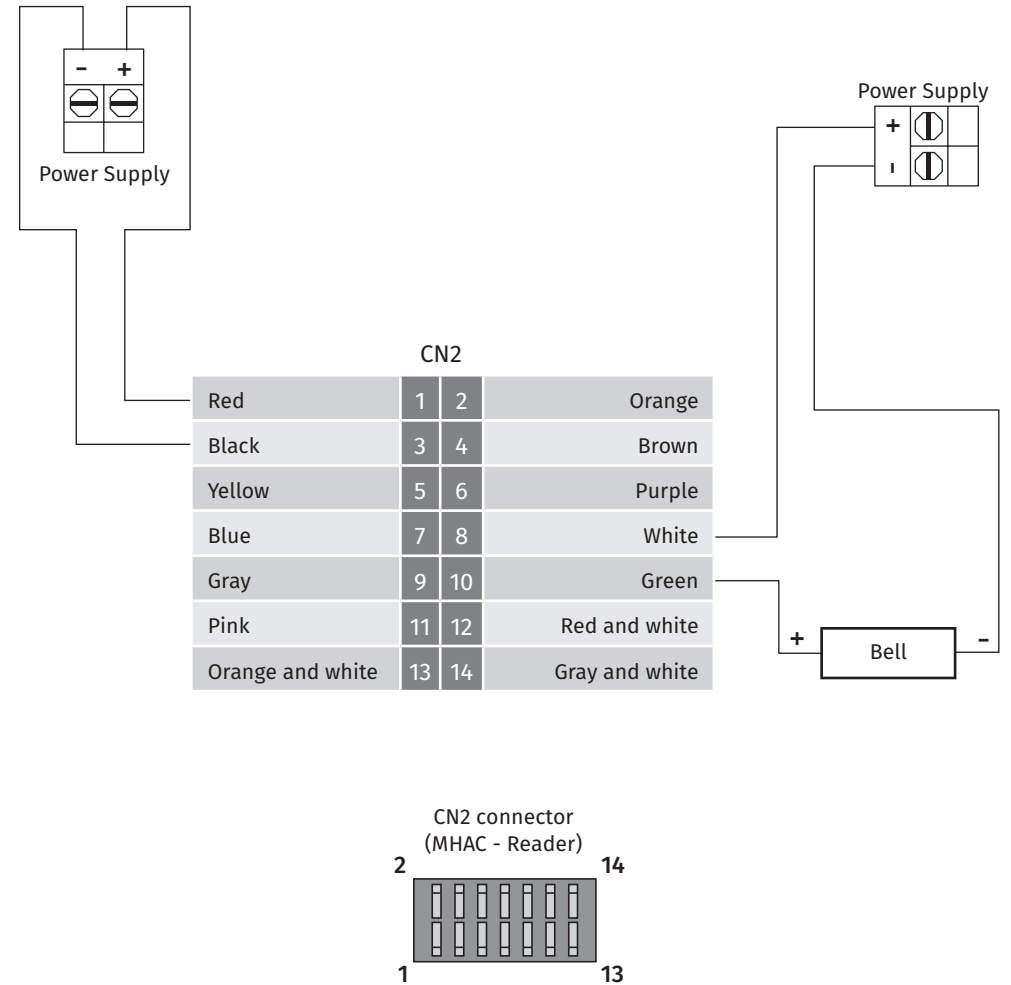
# 05. CONNECTION SCHEME

## ELECTRIC LOCK SCHEME



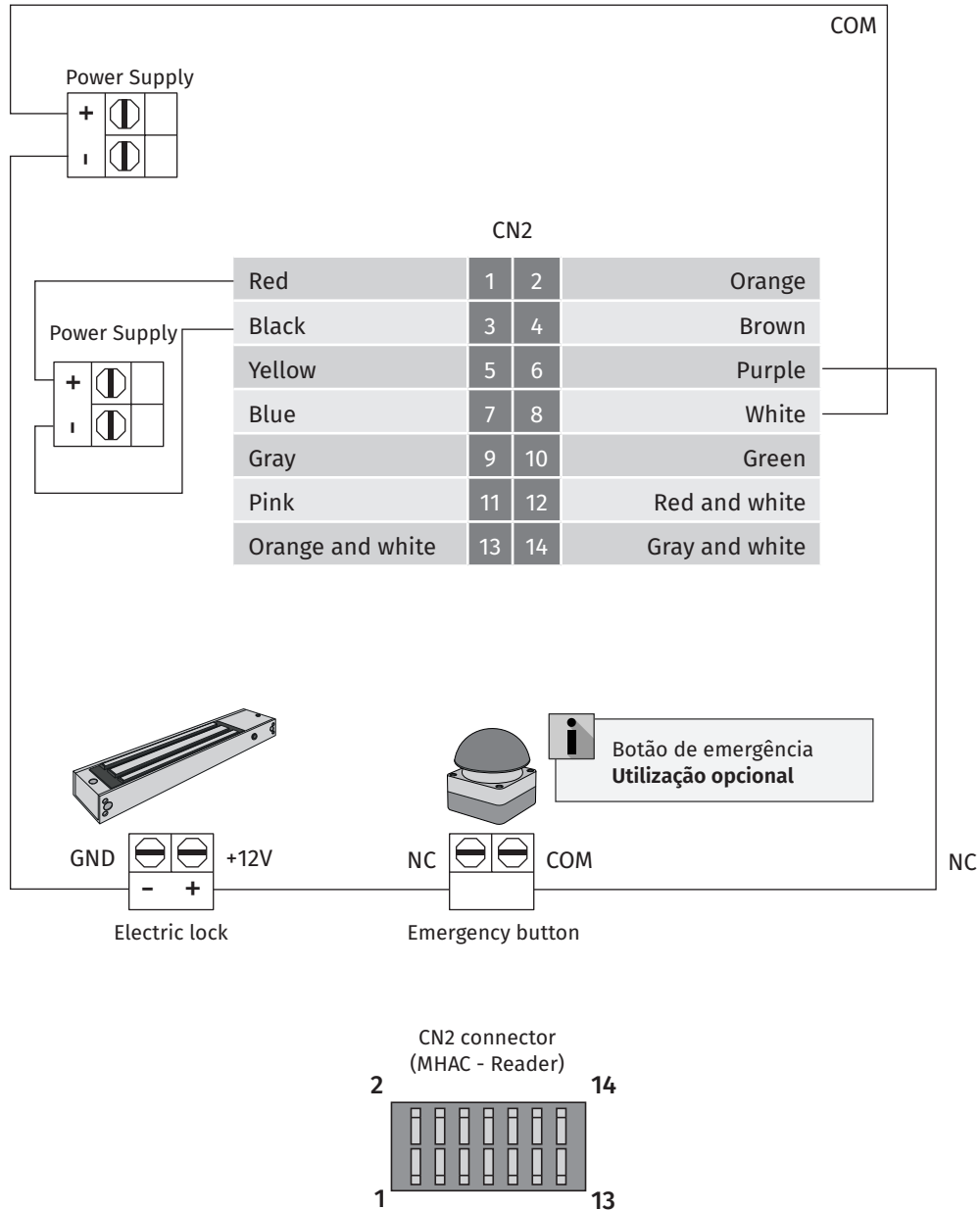
# 05. CONNECTION SCHEME

## ACCESSORIES SCHEME



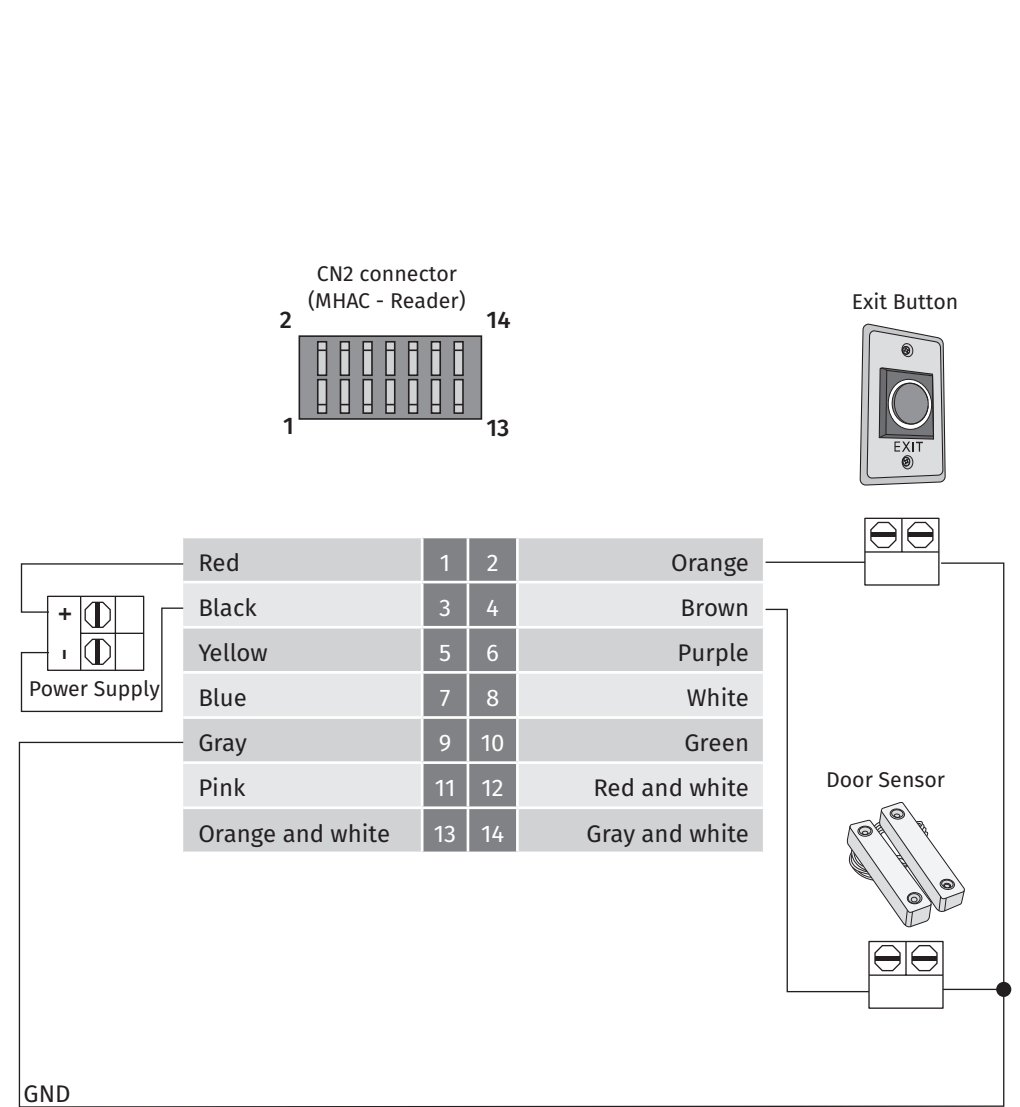
# 05. CONNECTION SCHEME

## ELECTROMAGNETIC LOCK SCHEME



# 05. CONNECTION SCHEME

## OUTPUT BUTTON SCHEME AND DOOR SENSOR



## 06. STANDALONE PROGRAMMING

### INITIAL CONFIGURATION

To make any programming or changing the operating parameters, it is necessary that unauthorized modifications to the definitions do not occur.



All settings shown in "STANDALONE PROGRAMMING" can be changed by connecting the device to the M-ACCESS software.

### ADD CARD

OPERATIONS	INSTRUCTIONS
01 • Enter programming mode	* Master code # (The default master code is 30191000)
02 • Enter the control code 01	01 #
03 • Pass the card into the reader	Mifare Card
04 • Enter password	4 digits # (If you do not want to set the pin again press #)
05 • Exit programming mode	#

### REMOVE CARD

OPERATIONS	INSTRUCTIONS
01 • Enter programming mode	* Master code # (The default master code is 30191000)
02 • Enter the control code 02	02 #
03 • Pass the card in the reader	Mifare Card
04 • Exit programming mode	#

### REMOVE ALL CARDS

OPERATIONS	INSTRUCTIONS
01 • Enter programming mode	* Master code # (The default master code is 30191000)
02 • Enter the control code 03	03 #
03 • Exit programming mode	#

## 06. STANDALONE PROGRAMMING

### SET DOOR OPEN TIME

**Control code 10.** Sets the duration of the door opening time after reading the valid card or pressing the output button. (Predefined = 40 means 4 sec.) The time can be set from 1 to 6000 (drive = 0.1 sec.).

OPERATIONS	INSTRUCTIONS
01 • Enter programming mode	* Master code # (The default master code is 30191000)
02 • Enter the control code 10	10 #
03 • Enter time	Desired time
04 • Exit programming mode	#

### SET DOOR SENSOR DETECTION TIME

**Control Code 11.** Applicable only if the door sensor is installed. The default value is 0, which means that this function is disabled. The sensor detection time can be set from 1 to 6000 (drive = 0.1 sec.). When the door sensor detection time has been set, the system will monitor the status of the door. If the assigned door has expired, the controller will emit continuous sound signals. The door must be closed for the controller to quit the alarm. However, if the door was forced to open, the controller will activate the alarm relay to alert the administrator. To deactivate the alarm relay, enter the disarmament code.

OPERATIONS	INSTRUCTIONS
01 • Enter programming mode	* Master code # (The default master code is 30191000)
02 • Enter control code 11	11 #
03 • Enter time	Desired time
04 • Exit programming mode	#

## 06. STANDALONE PROGRAMMING

### ADVANCED FUNCTIONS

**Control Code 20.** Defines different types of advanced settings. Please refer to the table for the Advanced Settings list.

FUNCTIONS	CODE	OPERATIONS	VALUE
Sound Signals Controller	0	Controller without sound signals in the door sensor.	0
	1	Controller with sound signals in the door sensor.	+1
Door alarm	0	Alarm disabled on the door sensor.	0
	2	Alarm activated in the door sensor.	+2

**Example:** Enabled door alarm and controller. Enter 3 to perform the mentioned functions.

OPERATIONS	INSTRUCTIONS
01 • Enter programming mode	* Master code # (The default master code is 30191000)
02 • Enter control code 20	20 #
03 • Enter the value (3)	Value #
04 • Exit programming mode	#

### ALARM BUTTON AGAINST VIOLATIONS

**Control Code 21.** Defines different types of advanced settings. Please refer to the table for the Advanced Settings list. This setting replaces the normal door pushbutton operation for intrusion alarm pushbutton. This setting replaces the normal door pushbutton operation for intrusion alarm pushbutton.

FUNCTIONS	CODE	OPERATIONS	VALUE
Enable alarm button tampering	0	Disabled	0
	128	Activated	+128

**Example:** Alarm button against activated violations. Enter 128 to perform the mentioned functions.

OPERATIONS	INSTRUCTIONS
01 • Enter programming mode	* Master code # (The default master code is 30191000)
02 • Enter control code 21	21 #
03 • Enter the value (128)	Value #
04 • Exit programming mode	#

## 06. STANDALONE PROGRAMMING

### CARD CHECK

**Control Code 22.** Allows you to activate a second card check. This function restricts a card from being passed twice in a specified time.

OPERATIONS	INSTRUCTIONS
01 • Enter programming mode	* Master code # (The default master code is 30191000)
02 • Enter control code 22	22 #
03 • Enter time	1 to 255 seconds
04 • Exit programming mode	#

### EXIT BUTTON AND DOOR SENSOR

**Control code 23.** Sets the NO/NC settings for the output button and the door sensor. Please refer to the table below for the list of settings.

FUNCTIONS	CODE	OPERATIONS	VALUE
Output Button NO/NC	0	Disabled	0
	1	NC Output Button	+1
	2	NO Output Button	+2
Door sensor NO/NC	0	Disabled	0
	1	NC Sensor door	+4
	2	NO Sensor door	+8

**Example:** Output button as NO and door sensor as in  $2 + 8 = 10$ . Enter 10 to perform the mentioned functions.

OPERATIONS	INSTRUCTIONS
01 • Enter programming mode	* Master code # (The default master code is 30191000)
02 • Enter control code 23	23 #
03 • Enter the value	Value #
04 • Exit programming mode	#

## 06. STANDALONE PROGRAMMING

### ENTER DATE

**Control code 25.** Sets the date. The date format is yy:mm:dd:ww where yy represents the year (00~63), mm represents the month (01~12), dd represents the date (01~31), and ww represents the week (01~07). 01 for Monday and 07 represents Sunday and so on.

OPERATIONS	INSTRUCTIONS
01 • Enter programming mode	* Master code # (The default master code is 30191000)
02 • Enter control code 25	25 #
03 • Enter the date	yy:mm:dd:ww
04 • Exit programming mode	#

### ENTER HOUR

**Control code 26.** Sets the time. The time format is hh:mm:ss where hh represents the time (00~23), mm for minutes (00~59) and ss for seconds (00~59).

OPERATIONS	INSTRUCTIONS
01 • Enter programming mode	* Master code # (The default master code is 30191000)
02 • Enter control code 26	26 #
03 • Enter the hour	hh:mm:ss
04 • Exit programming mode	#

### KEYBOARD

**Control code 27.** Allows you to enable/disable the keyboard. When parameter is set to 0, keypads are disabled; when the parameter is set to 1, keypads are enabled.

OPERATIONS	INSTRUCTIONS
01 • Enter programming mode	* Master code # (The default master code is 30191000)
02 • Enter control code 27	27 #
03 • Enter the value	Value #
04 • Exit programming mode	#

## 06. STANDALONE PROGRAMMING

### KEYBOARD



Do not disable the keyboard when you don't have the Main Card. The Master Code is required to enter programming mode so disabling keypads will lock it out.

### SAVE INVALID CARD

**Control code 31.** Allows the user to save the invalid card number. To write invalid card number, set parameter to 1, to ignore, set to 0.

OPERATIONS	INSTRUCTIONS
01 • Enter programming mode	* Master code # (The default master code is 30191000)
02 • Enter control code 31	31 #
03 • Enter the value	Value #
04 • Exit programming mode	#

### MASTER CODE

**Control code 90.** Allows the user to change the main code. Default Master Code is "30191000". To change, follow the instructions below and enter the new 10 digits master code. Whenever a device initialization is performed, the master code will be reset back to its default "30191000".

OPERATIONS	INSTRUCTIONS
01 • Enter programming mode	* Master code # (The default master code is 30191000)
02 • Enter control code 90	90 #
03 • Enter code	New master code #
04 • Exit programming mode	#



## 06. STANDALONE PROGRAMMING

### ALARM DISARM CARD OR CODE

**Control code 92.** Allows user to change the alarm card/disarm code. The default card/disarm code is "1190". To change, follow the instructions below and enter the new code/disarm card of 10 digits or less. Whenever a device initialization is performed, the disarm code will be reset to the default "1190".

OPERATIONS	INSTRUCTIONS
01 • Enter programming mode	* Master code # (The default master code is 30191000)
02 • Enter control code 92	92 #
03 • Enter code	New master code #
04 • Exit programming mode	#

### OPERATING MODE

**Control code 94.** Allows user to change access mode - **Mode 0: magnetic card only, Mode 1: magnetic card or enter card number, Mode 2: magnetic card or enter card number + password.** This function is only applicable when the device is used with an access controller.

OPERATIONS	INSTRUCTIONS
01 • Enter programming mode	* Master code # (The default master code is 30191000)
02 • Enter control code 94	94 #
03 • Enter code	Value #
04 • Exit programming mode	#

### SLAVE READER

**Control code 96.** Allows user to change valid card mode. For key values, see the table below:

FUNCTIONS	KEY VALUE	OPERATIONS	KEY VALUE
Anti	0	Disabled	0
	4	Activated	+4

## 06. STANDALONE PROGRAMMING

### SLAVE READER

Interface	0	T1/T2 Interface	0
	16	Wiegand 26 Interface (8 digitos)	+16
	32	Wiegand 26 Interface (10 digitos)	+32
	48	Wiegand 34 Interface (10 digitos)	+48

OPERATIONS	INSTRUCTIONS
01 • Enter programming mode	* Master Code # (The default master code is 30191000)
02 • Enter control code 96	96 #
03 • Enter code	Value #
04 • Exit programming mode	#

### RELAY MODE

**Control code 97.** Allows user to change relay mode - Mode 0: Door relay Mode 1: Bell.

OPERATIONS	INSTRUCTIONS
01 • Enter programming mode	* Master Code # (The default master code is 30191000)
02 • Enter control code 97	97 #
03 • Enter code	Value #
04 • Exit programming mode	#

## 06. STANDALONE PROGRAMMING

### RESET TO FACTORY VALUES

**Control code 99.** Remove all memory registers including card numbers, system settings, master code and resets all parameters to default settings.

**Do this only when you detect a abnormal operation and if you want to clear all card numbers and pins.**

OPERATIONS	INSTRUCTIONS
01 • Enter programming mode	* <input type="text" value="Master Code"/> # (The default master code is 30191000)
02 • Enter control code 99	99
03 • Exit programming mode	#

## 07. REQUIREMENTS

### CONNECTING CABLES

CABLE MODEL	CABLE SPECIFICATION	MAXIMUM LENGTH FOR CONNECTION
Power cable	18-22 AWG	30m
Alarm relay connection cable	18-22 AWG	50m
Exit button connection cable	18-22 AWG	50m
RS-232 cable	4-Turn Shielded Twisted Pair Wire 20-22 AWG	25m
RS-485 cable	4-Turn Shielded Twisted Pair Wire 20-22 AWG	800m

It is recommended that:

- Update cable specification according to transmission distance.
- Update cable specification according to environmental interference factors.
- Use larger cable strands for future use.
- The use of shielded twisted pair wire for readers and communication cable to increase transmission distance and resistance to interference.

## 08. COMPONENT TEST

### DEVICE TEST

To avoid the touch sensor auto-detect interference, please do not touch the sensor when turning on the device power.

- 1 • Turn on the power.
- 2 • The reader will emit a beep after 1 second, indicating that initialization is complete.
- 3 • The green LED will blink.
- 4 • Press the Exit Button to activate the door relay and the electronic lock will activate for 4 seconds.
- 5 • Reader emits two short beeps for valid card and three long beeps for invalid card.
- 6 • Test is complete.



## 09. TROUBLESHOOTING

### INSTRUCTIONS FOR FINAL CONSUMERS/TECHNICIANS

PROBLEM	SOLUTION
Reader LED does not light up.	Make sure the power is turned up properly.
The reader does not beep and the LED does not light up after reading the card.	The card can only be read when the reader has the LED ON (green). Make sure the card is a Mifare format.
Cannot enter programming mode with master code.	Reset the device, contact your dealer or specialized technician.
The door does not open with a valid card.	Check if the device beeps when reading the card; Check if the card is valid and has access authorization; Check if the electronic lock is installed correctly; Enter programming mode and check the door unlock time settings (Control 10).