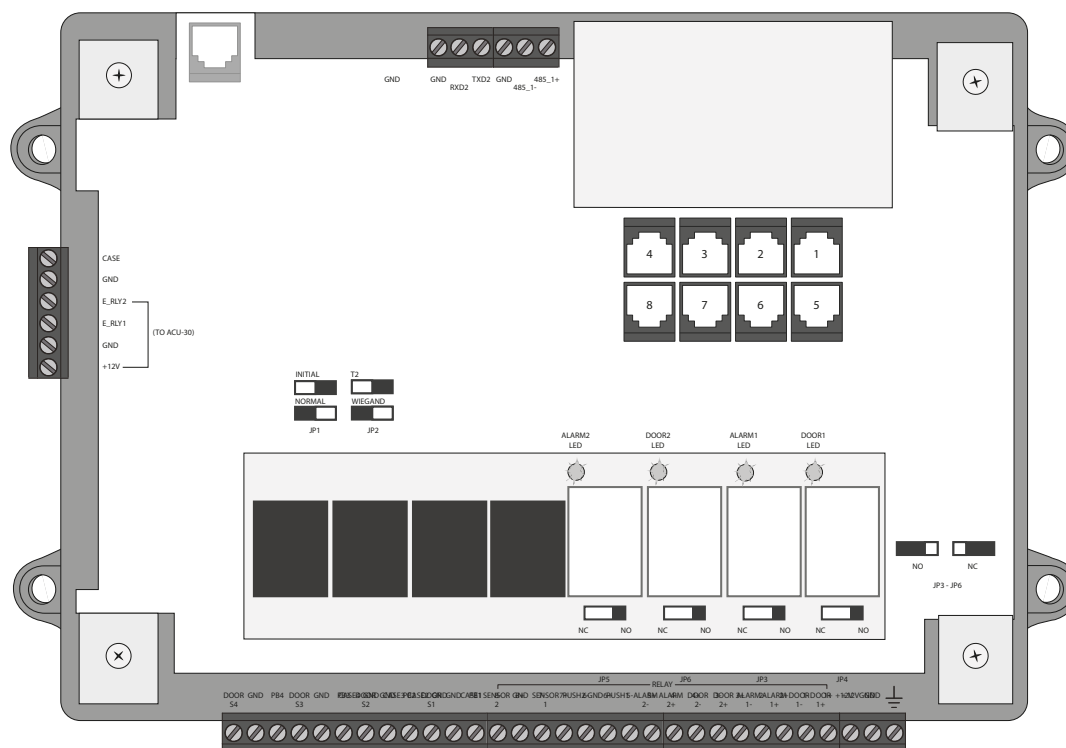




MRAC4600N

USER/INSTALLER MANUAL







00. CONTENT

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01. SAFETY STANDARDS

WARNING:

	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 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 STANDARDS

GENERAL WARNINGS

- This manual contains very important safety and usage information. very important. 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.

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 central 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 central 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

01. SAFETY STANDARDS

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 central (only at 24V motors)

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 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. PRODUCT



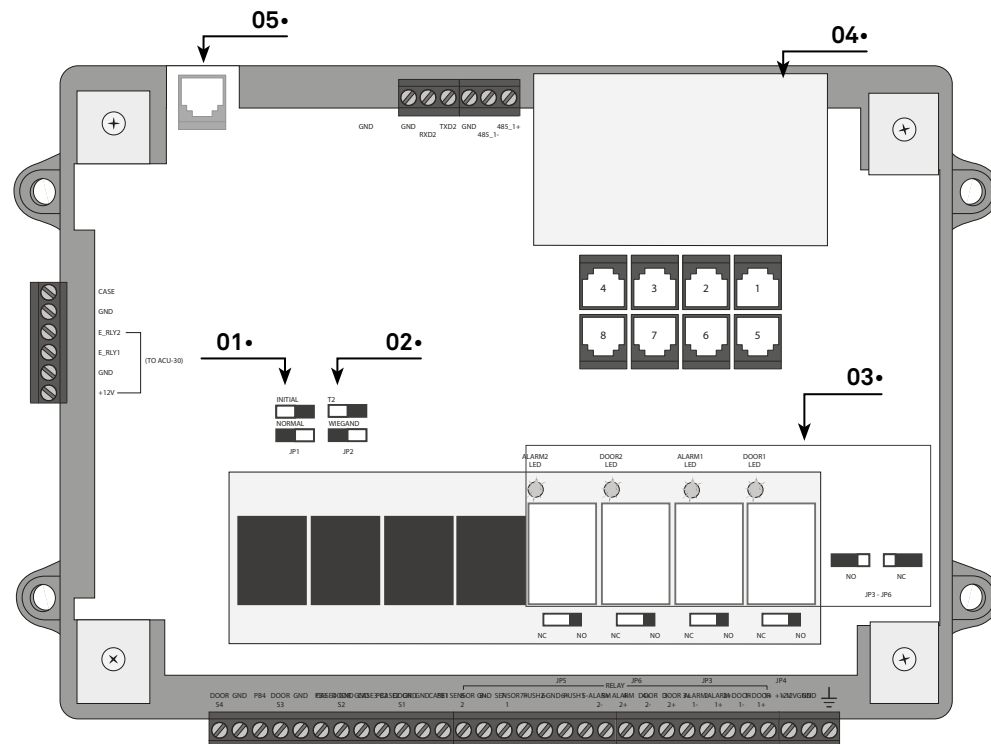
The **MRAC4600N** is a control board for controlling access to a certain location.

It has the following characteristics:

- Connect up to 8 Wiegand or RS 485 readers;
- Alarm card/code configuration;
- 128 time zones;
- 8 conditional times to unlock doors;
- Possibility of configuring schedules for vacations;
- Five input modes: [Card and Code], [Card], [Code], [Bluetooth] and [NFC];
- Blacklist to avoid unknown use of lost cards;
- Anti-Passback Function;
- Total control through Motorline software;
- Supports various actuators for alarm (example: door does not close, force the opening and reader broken);
- Possibility of communication with the M-ACCESS MOTORLINE software in passive and active state.

• Power Supply	12 Vdc
• Inputs	9 sensors [door sensor (4), exit button (4), case sensor (1), input options (8)]
• Outputs	8 relays [door control (4), alarm (4)]
• Cards	40000 max.
• Passage records	100000
• Diagnostic LEDs	Connection, Status and Communication
• Internal clock	Yes
• Supported Readers	8xWiegand or 1xRS485
• Consumption	700mA
• Communication with the software	TCP/IP
• Transmission rate	10/100 Mbps
• Working temperature	-40°C ~ 70°C
• Operating humidity	20% ~ 80%
• Dimension	150 x 210 x 40mm

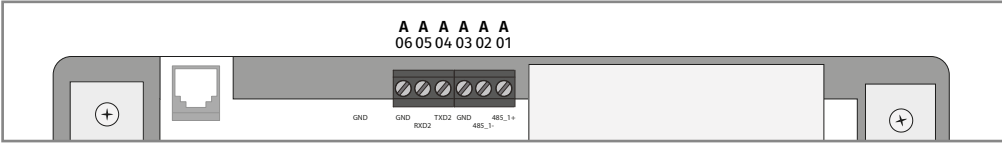
02. PRODUCT



Main components:

- 01 • Factory reset or normal operating mode
- 02 • T2 Reader or Wiegand Reader
- 03 • Relay NO/NC state selector
- 04 • T2 Reader or Wiegand Reader
- 05 • LAN Network Communication Port

02. PRODUCT



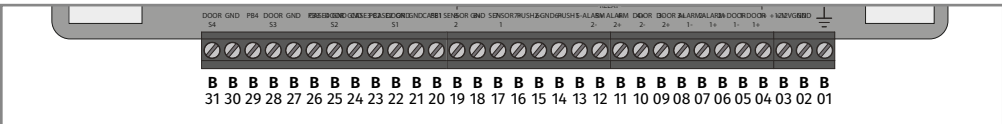
Reader of Door 1	A1 •	485_1+	Connection for RS-485 + Reader
	A2 •	485_1-	Connection for RS-485 Reader -
	A3 •	GND	Common
	A4 •	TXD2	TXD communication
	A5 •	RXD2	RXD communication
	A6 •	GND	Common

Notes:

- Please provide separate power supply to avoid power degradation due to long transmission distance and ensure normal reader operation;
- Use a DC switched power supply to power the reader;
- Add an insulator of adequate thickness to the back of the reader if you want to install it on a metallic object to avoid interference;
- The distance between 2 readers must be 1.5 times greater than the reading range to avoid radio frequency interference between them;
- Reader IDs 1 and 2 are for Door 1 (entrance/exit), Reader IDs 3 and 4 are for Door 2 (entrance/exit), Reader IDs 5 and 6 are for Door 3 (entrance/exit) and reader IDs 7 and 8 are for Door 4 (entrance/exit).



Reader of Door 1	B1 •	CASE	Box Sensor Input
	B2 •	GND	Common
	B3 •	E_RLY2	Alarm Relay Input (ACU-30)
	B4 •	E_RLY1	Door Relay Input (ACU-30)
	B5 •	GND	Common (ACU-30)
	B6 •	+12V	Power supply Output (12V)

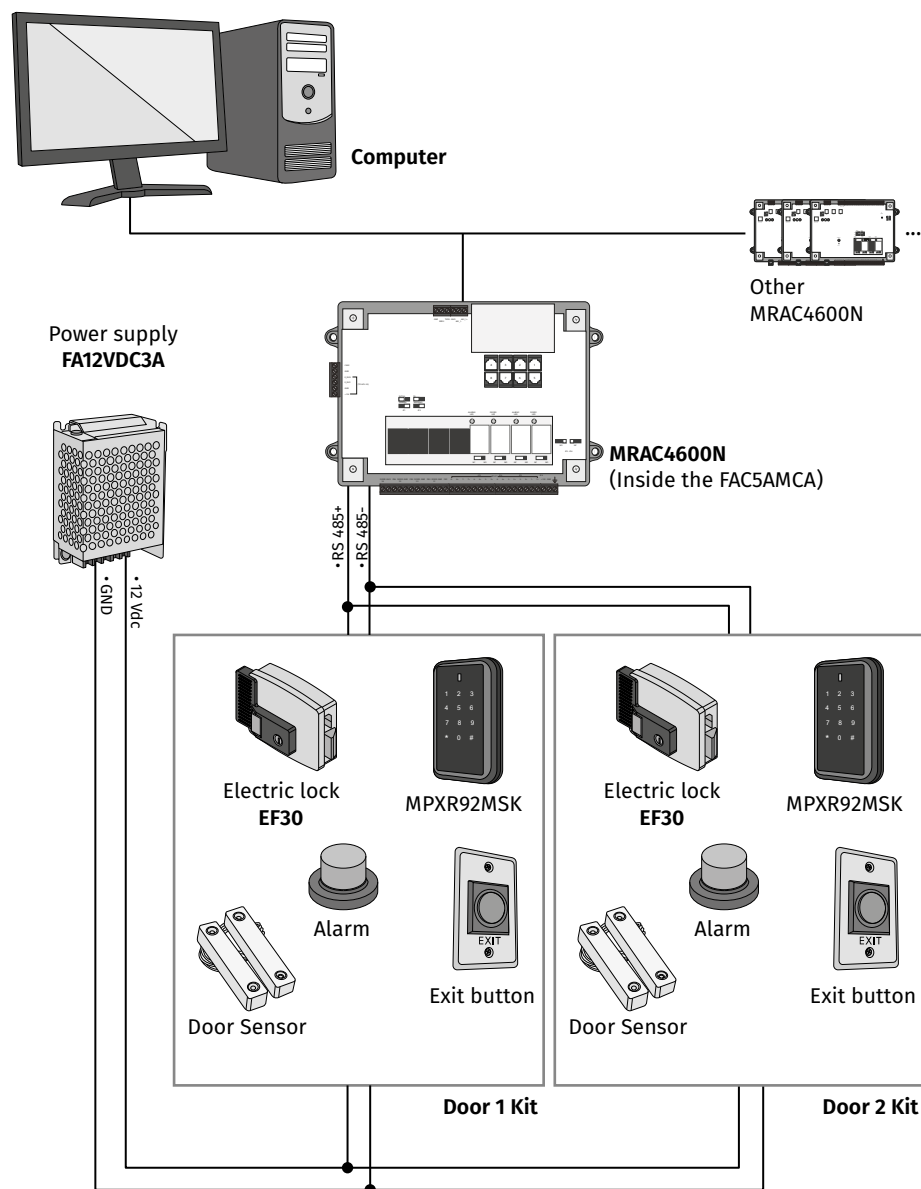


02. PRODUCT

Power supply	B1 •	FG	Ground wire
	B2 •	GND	Power supply input (GND)
	B3 •	+12V	Power supply Input (12V)
	B4 •	1+	Relay Output - Door 1 (NO/NC)
	B5 •	1-	Common
	B6 •	2+	Relay Output - Door 2 (NO/NC)
	B7 •	2-	Common
	B8 •	3+	Relay Output - Door 3 (NO/NC)
	B9 •	3-	Common
	B10 •	4+	Relay Output - Door 4 (NO/NC)
	B11 •	4-	Common
	B12 •	5+	Relay Output - Door 1 Alarm (NO/NC)
	B13 •	5-	Common
	B14 •	6+	Relay Output - Door 2 Alarm (NO/NC)
	B15 •	6-	Common
	B16 •	7+	Relay Output - Door 3 Alarm (NO/NC)
	B17 •	7-	Common
	B18 •	8+	Relay Output - Door 4 Alarm (NO/NC)
	B19 •	8-	Common
	B20 •	PB1	Door 1 - Exit Button (NO)
	B21 •	GND	Common
	B22 •	DOORS1	Door 1 - Door Sensor (NO)
	B23 •	PB2	Door 2 - Exit Button (NO)
	B24 •	GND	Common
	B25 •	DOORS2	Door 2 - Door Sensor (NO)
	B26 •	PB3	Door 3 - Exit Button (NO)
	B27 •	GND	Common
	B28 •	DOORS3	Door 3 - Door Sensor (NO)
	B29 •	PB4	Door 4 - Exit Button (NO)
	B30 •	GND	Common
	B31 •	DOORS4	Door 4 - Door Sensor (NO)

03. WORKING SCHEME

SYSTEM SETUP



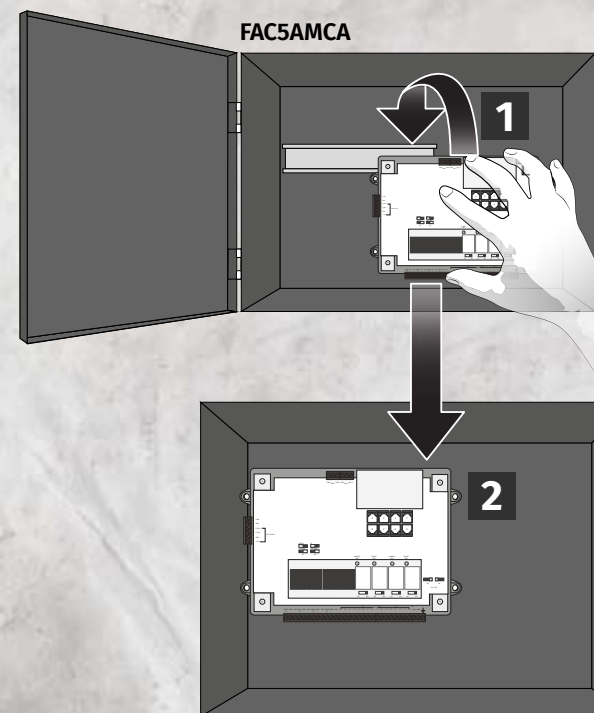
04. INSTALLATION

CONTROL BOARD INSTALLATION



To install the control board, proceed as follows:

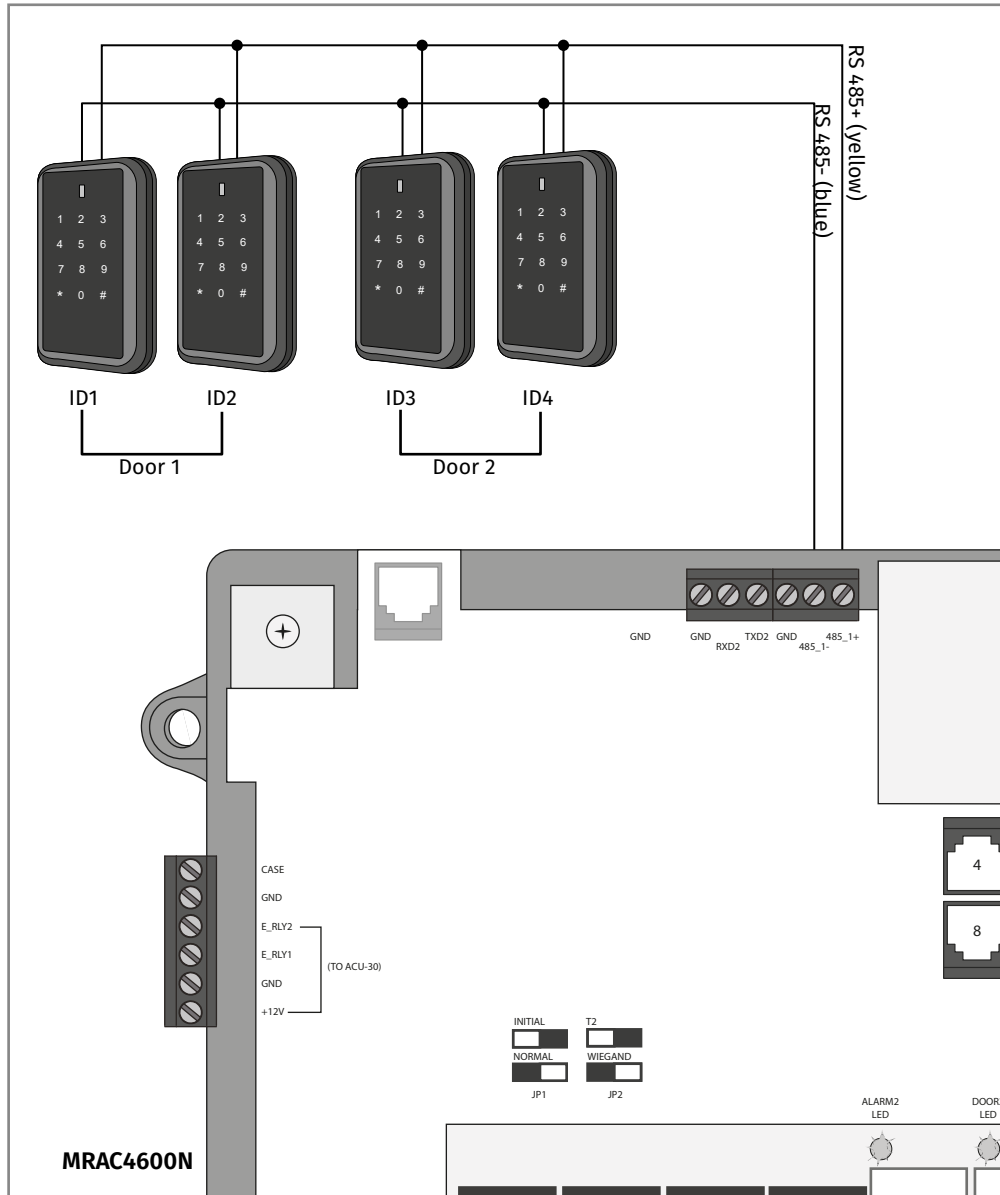
- 1 Position control board triggers into guide slots.
- 2 Press so that the control board fits into the guide.



05. CONNECTION SCHEME

CONNECTION OF RS 485 READERS

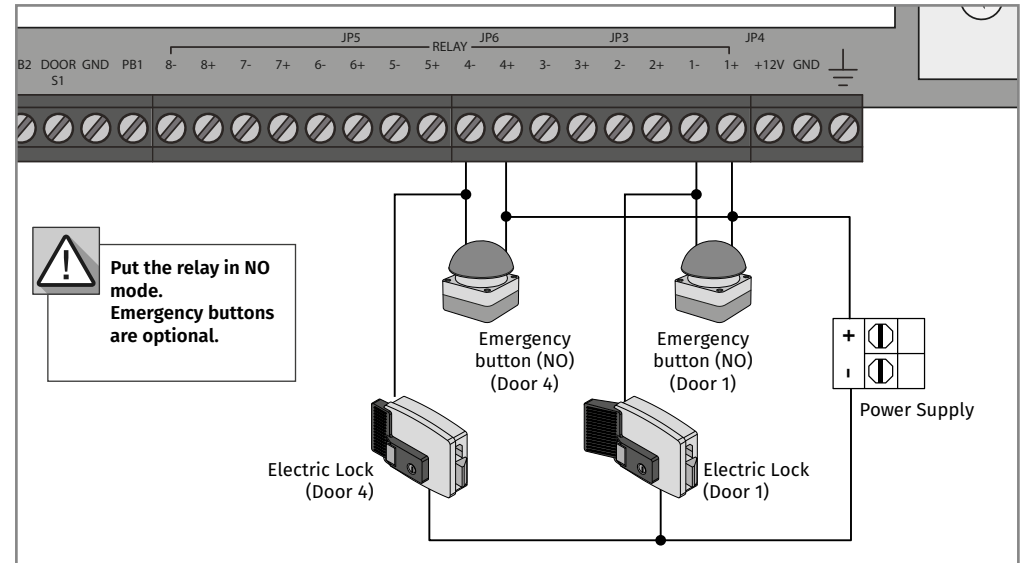
- The maximum distance between a control board and the last reader cannot exceed 1200m.



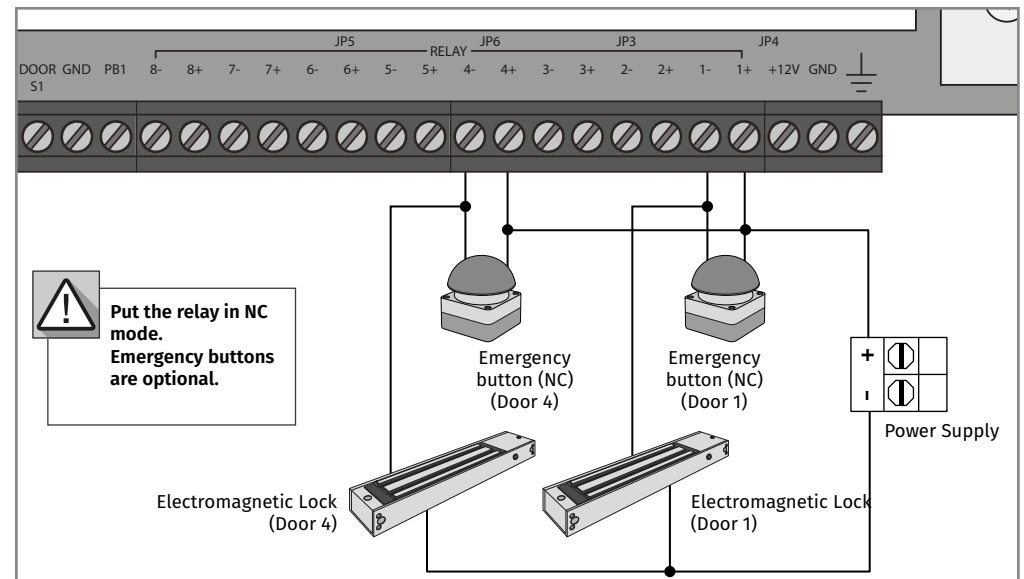
05. CONNECTION SCHEME

ELECTRIC LOCK AND ELECTROMAGNETIC LOCK CONNECTION

ELECTRIC LOCK (NO)

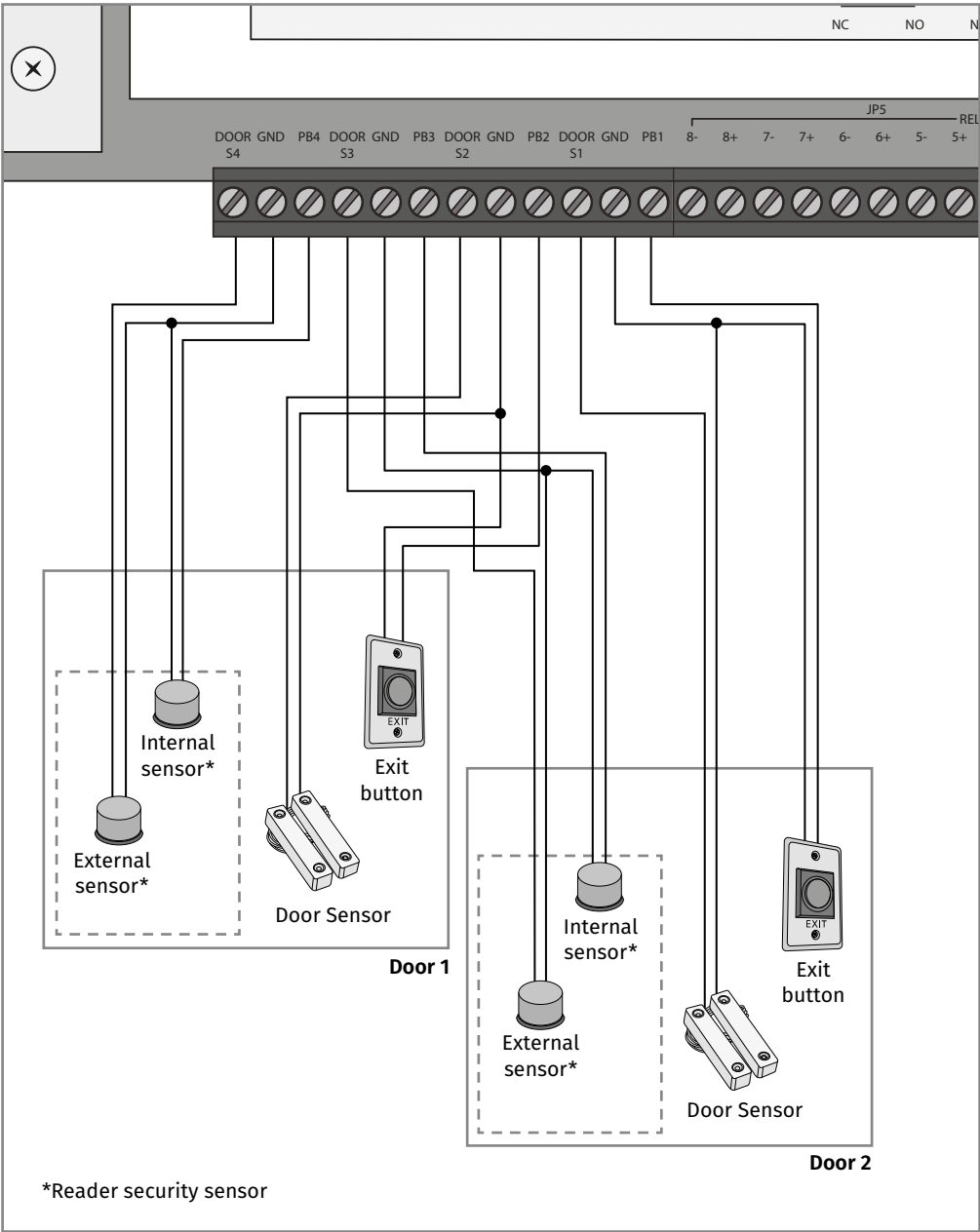


ELECTROMAGNETIC LOCK (NC)



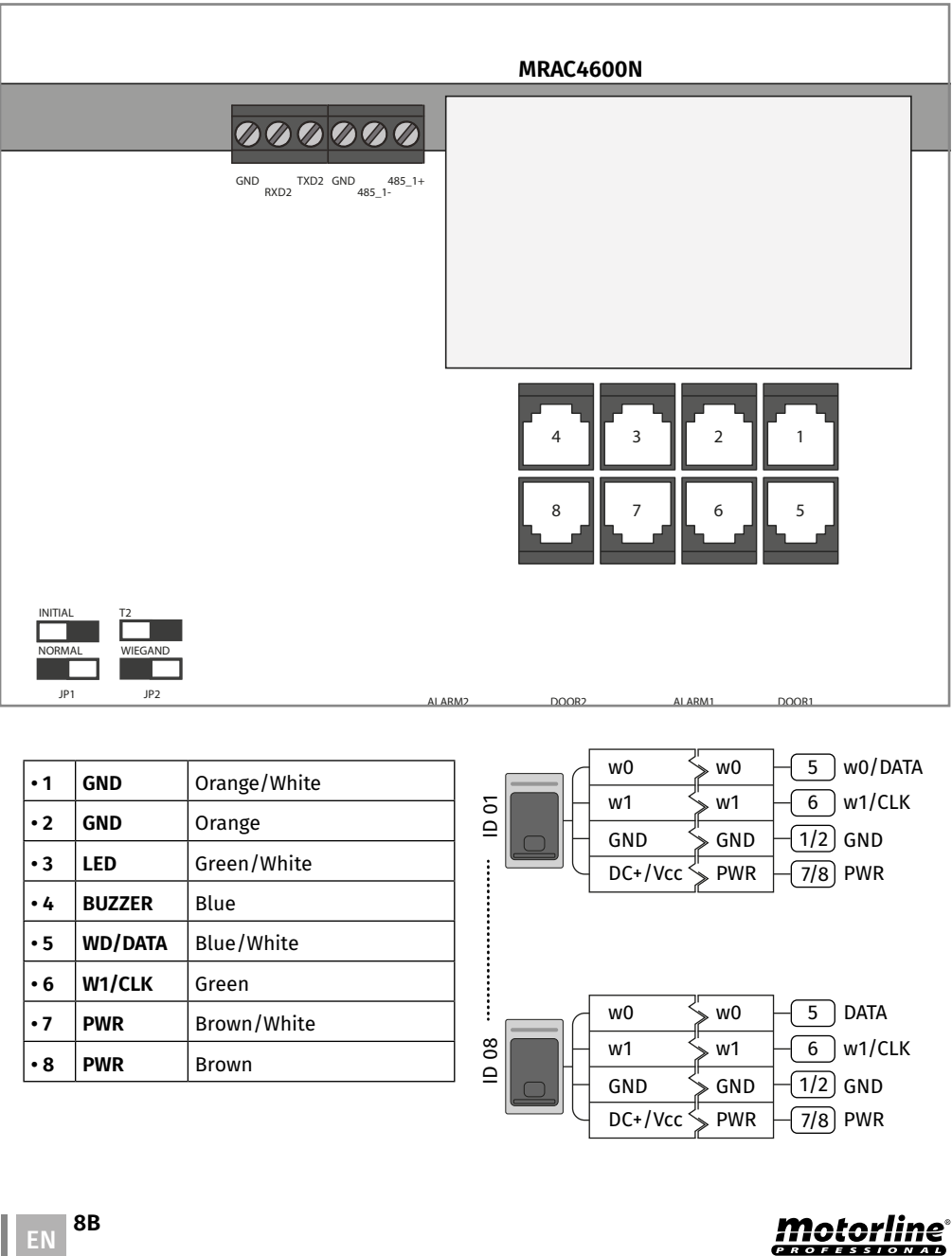
05. CONNECTION SCHEME

PERIPHERAL CONNECTION



05. CONNECTION SCHEME

WIEGAND READER CONNECTION

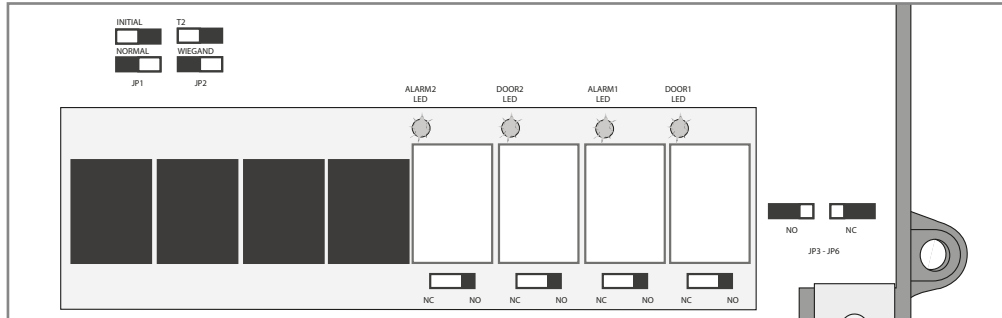


06. CONFIGURATION

RELAY MODE

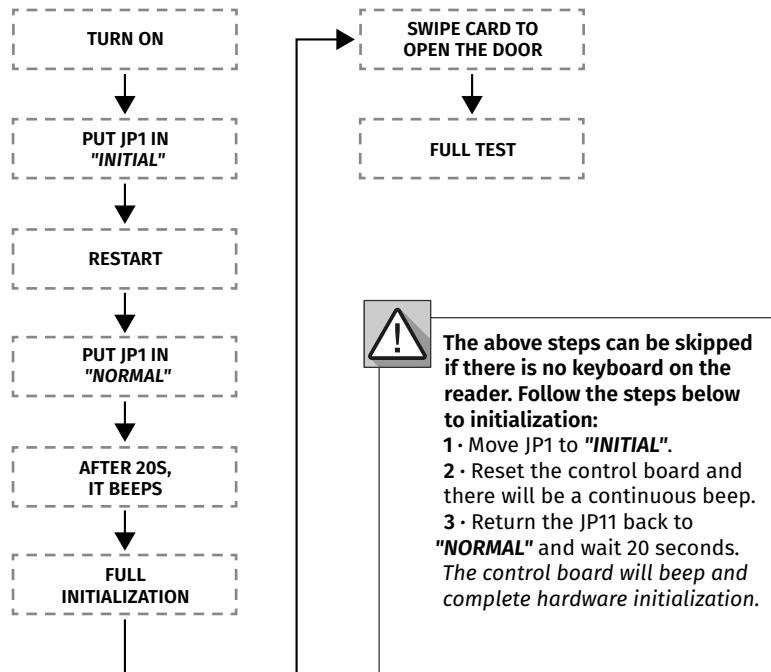
For relay mode you can configure according to:

- "NO" for electrical screw lock connection and Alarm output.
- "NC" for the connection of electrical faults and Electromagnetic Lock.



CONTROL BOARD TEST

- The control board will beep after 2s and LED 4 will start flashing.
- The control board will emit a continuous beep.

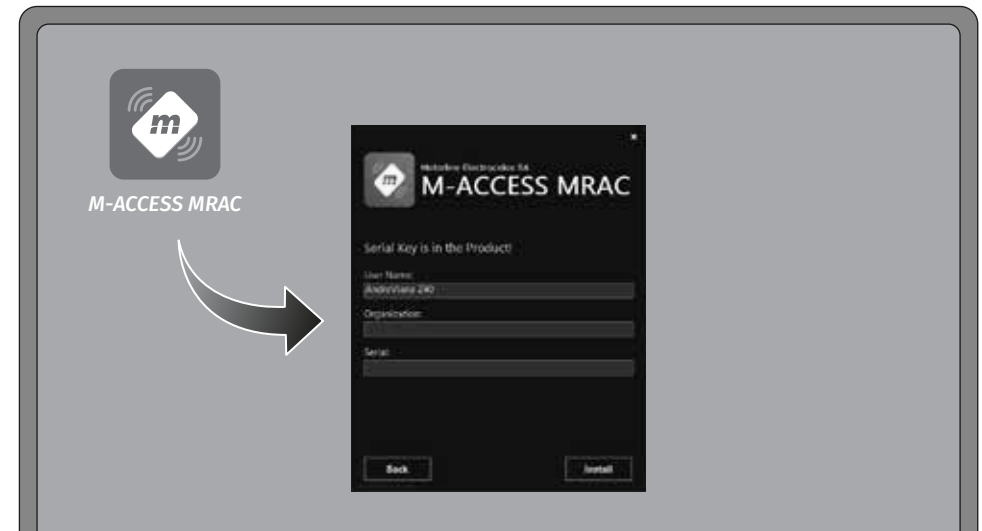


07. SOFTWARE

SYSTEM OPERATION SUPPORTED BY THE SOFTWARE

OPERATING SYSTEM: **Windows 7** or higher.

SOFTWARE INSTALLATION AND CONFIGURATION



- 01 • Download the **M-ACCESS** software from the **motorline.pt** website. Run the "setup.exe" application.
- 02 • Open the application icon on the desktop to start M-ACCESS and configure it:
 - Select Language
 - Set a Username
 - Set a name for the Organization
 - Enter the *Serial Number*



You can find the *Serial Number* on the product.

CONFIGURE IP OF THE NETWORK TO USE

- 01 • In the "IP Protocol Properties", define the **IP Address** that you want to use on your system, as well as the **Subnet Mask** and save the changes made.

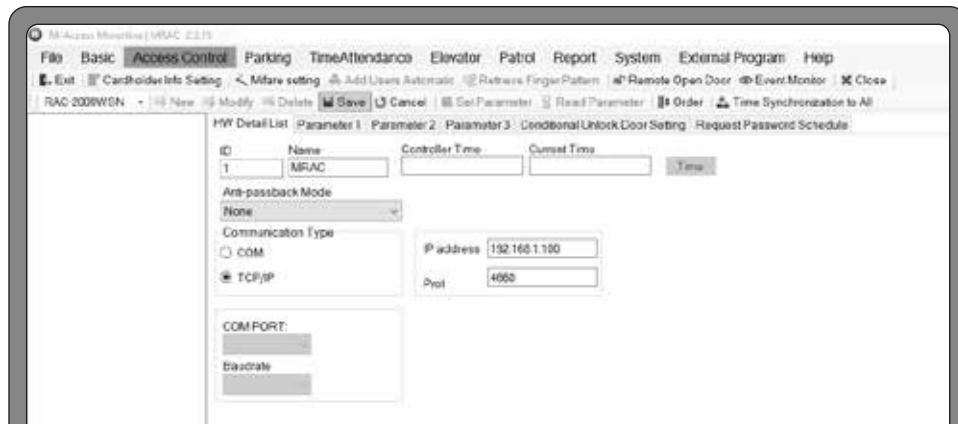
Path: **Control Panel\Network and Internet\Network and Sharing Center\Ethernet\Properties**

07. SOFTWARE

ADD MRAC IN SOFTWARE



- 01 • Start the Motorline IP Tool software and search for the MRAC connected to your computer [Search button].
- 02 • Select the MRAC device and change the IP Address e Submask to the values you set in **CONFIGURE IP OF THE NETWORK TO USE**. Confirm the [Broadcast Setup Button] operation.



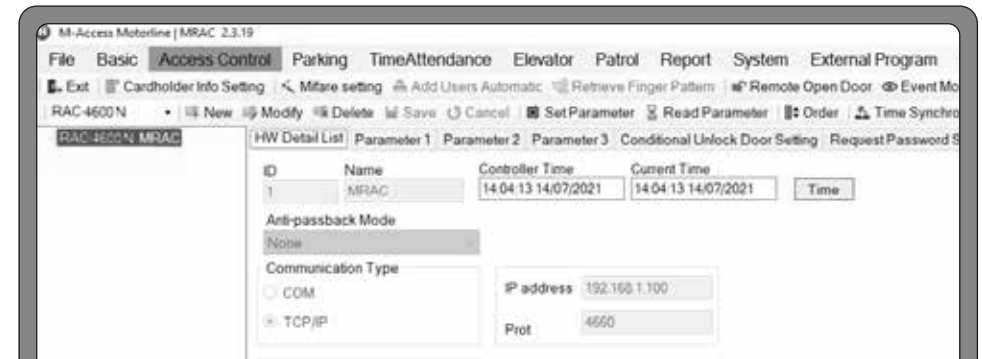
- 03 • Return to the **M-ACCESS** software and log in: **User: USER / Password: USER**.
- 04 • In the "Hardware Settings" window add the new MRAC device [New Button].
Path: **Access Control/M-RAC4600/Hardware Settings**
- 05 • Assign an ID and Name to the control board and enter the previously defined IP.



In the field **Door** enter the value **4660**.

07. SOFTWARE

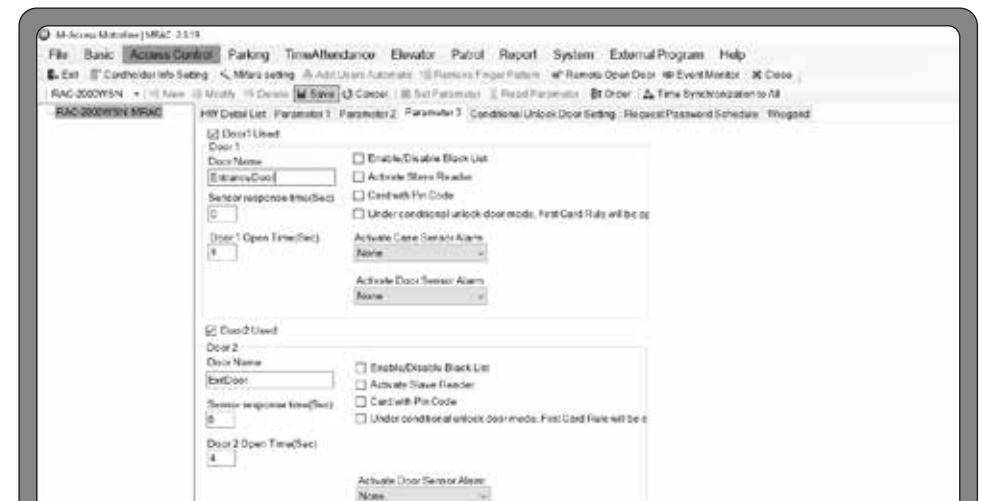
ADD MRAC IN SOFTWARE



- 06 • Synchronize the time [Time Button] to test your communication with the MRAC device. If communication is established, the time fields will be automatically filled in.
- 07 • Once the communication between computer and MRAC is tested, you can save the settings [Save Button].



If there is a communication failure, check if the IP typed matches the IP defined previously.



- 08 • Activate the edit mode [Modify Button] and in "Parameter 3", activate the necessary doors and assign a name to each one. Save the changes [Save button].

07. SOFTWARE

ADD USER BY MIFARE CARD



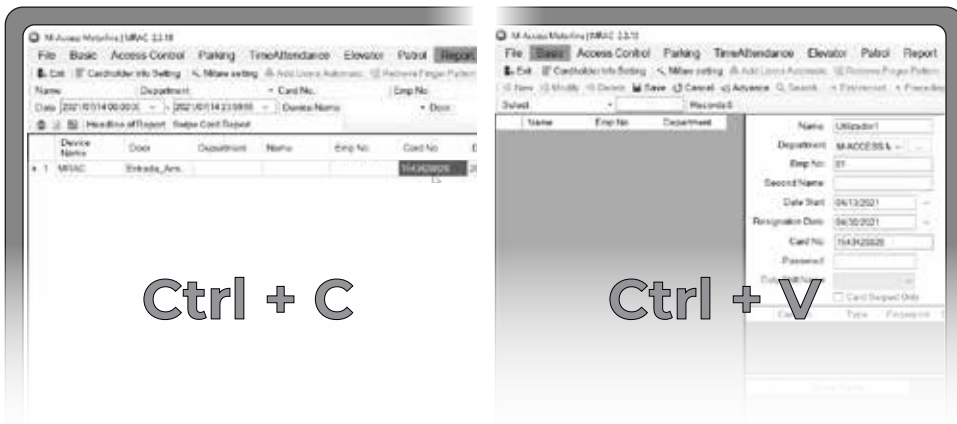
The following steps demonstrate how to add a User per MIFARE Card without using a mass card recording device such as the MIM1100U.



01 • In the "EventMonitor" window, click **[Retrieve]** to start monitoring a card in real time.

Path: **Access Control/EventMonitor**

02 • Swipe the card into a card reader device connected to the MRAC4600N and check its registration in the software.



03 • In the "History Report" window click **[Search]**, select the MIFARE card record and copy the card number (Ctrl + C).

Path: **Report/History Report**

04 • In "Cardholder Info Settings" click on **[New]** to create the card record and in the "Card No." field paste the previously copied card number (Ctrl + V).

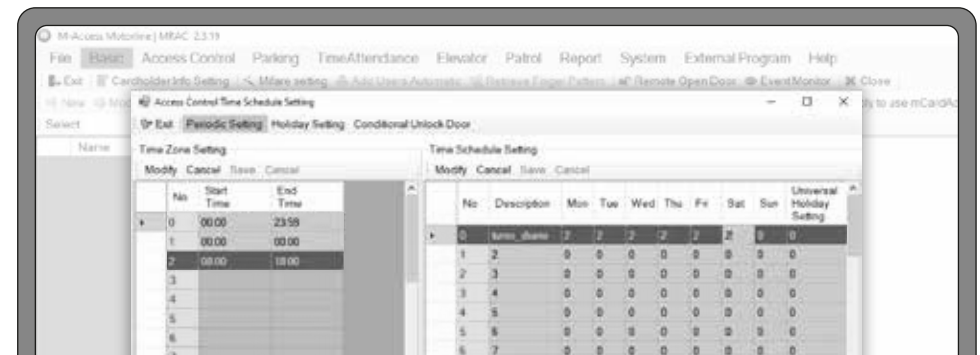
07. SOFTWARE

ADD USER BY PIN



01 • In "Cardholder Info Setting" click **[New]** to create a new record and in the "Card No." field enter the desired PIN.

CONFIGURE SCHEDULES



01 • To set a new schedule enter "Periodic Setting".

Path: **Access Control/M-RAC4600/Periodic Setting**

02 • In the column "Time Zone Setting" click **[Modify Button]** to add a new schedule.

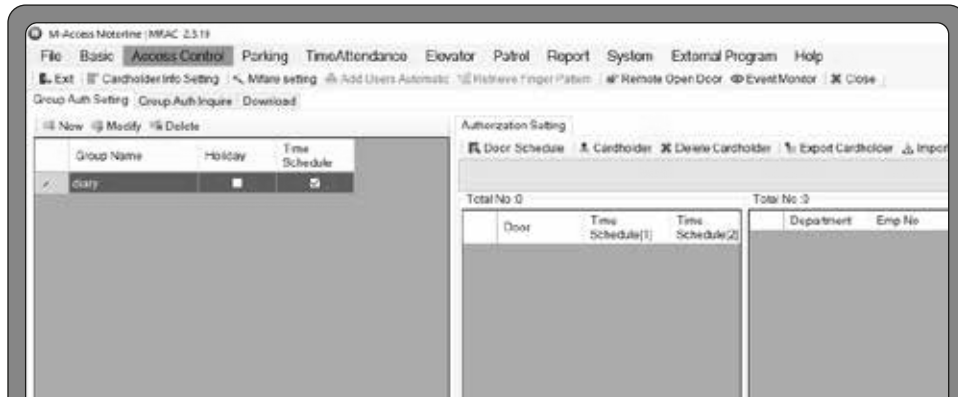
03 • In the column "Time Schedule Setting", create a timetable and assign the ID related to the range of hours you want for each day of the week. Save the changes **[Save Button]**.



If you do not want to define a new schedule, you can use the **free schedules predefined in IDs 0 and 1**.

07. SOFTWARE

ASSIGN AUTHORIZATIONS

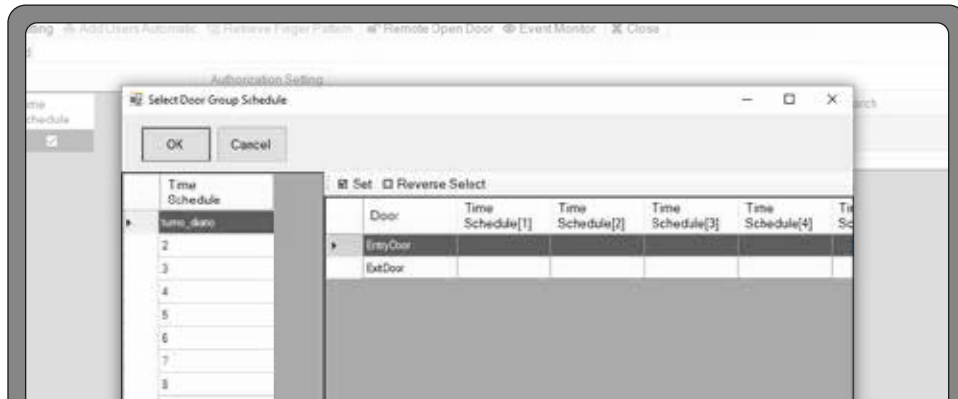


01 • Go to "Group Auth Setting", create a new group of authorizations [**New** Button] and define the type of use that this group will have (Holiday or Time Schedule).

Path: **Access Control/M-RAC4600/Authorization Setup**



If the Group Auth Setting is intended for regular and non-sporadic use, deselect the **Holiday** option.

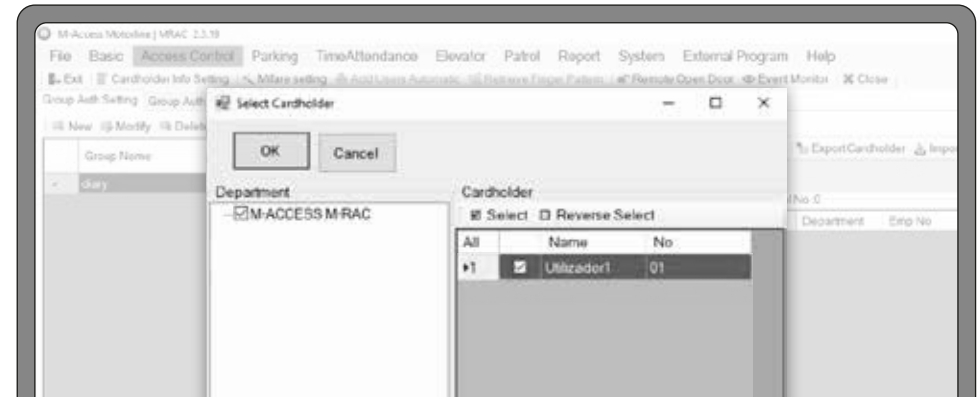


02 • Click [**Time Schedule**] to assign the previously set schedule to the desired doors.

03 • Select the desired door and assign the schedule [**Set** Button].
Save changes [**OK** button].

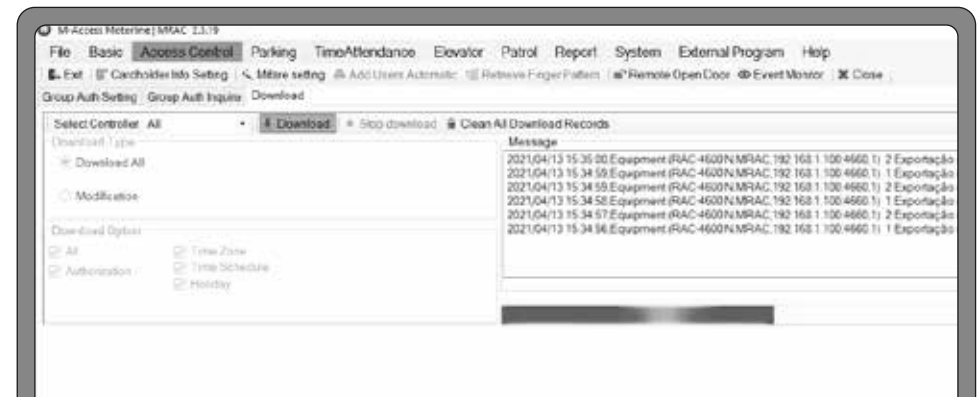
07. SOFTWARE

ASSIGN AUTHORIZATIONS



04 • Click [**Cardholder**] to give authorization to the intended Users.

05 • In the "**Department**" window select the device MRAC4600N and select the Users you want to authorize.
Save changes [**OK** button].



06 • In the "Download" window, select the "Download All" field and then click [**Download**] to copy all changes made to the MRAC4600N device.

Path: **Access Control/M-RAC4600/Download**

07. SOFTWARE

TEST AUTHORIZATIONS

To test the assigned authorizations:

01 • In the "Access Control" window and select [**EventMonitor**].

02 • Click [**Retrieve**] to enable MRAC4600N Monitoring.

03 • Swipe the registered card into the reader and see the feedback presented in the table.



If the registration is performed correctly, the message in the table will show **Access Guaranteed** confirming the successful registration of the card.

08. TROUBLESHOOTING

INSTRUCTIONS FOR FINAL CONSUMERS / SPECIALIZED TECHNICIANS

PROBLEM	SOLUTION
The control board power indicator LED does not flash.	<ul style="list-style-type: none"> • Check if the 12V power is connected to the power supply. • Check whether the power polarity is correct and whether the power input is sufficient or not.
The door does not open after swiping the card.	<ul style="list-style-type: none"> • Check if the reader wire connection and reader interface setting is correct. • Make sure you set the authorization and the card number is correct. • Check the connection of the MRAC with the lock. • Make sure the reader ID is correct.
The reader beeps once after swiping the card. There is no other sound	<ul style="list-style-type: none"> • Make sure the reader ID is correct. • Check if the reader type is correct. • Reset the control board button and try to recover the connection.
Reader shows incorrect time and date.	<ul style="list-style-type: none"> • Check the connection between the reader and the control board. • Make sure the reader ID is correct. • Reset the control board button and try to recover the connection. • Sync through the software.
Occasionally it is not possible to access the door.	<ul style="list-style-type: none"> • Make sure the access authorization setting is correct. • Upload the authorization for the control board again.
Cannot enter recommendation mode after entering Master Code.	<ul style="list-style-type: none"> • Check that the reader connection is correct. • Check that the Master Code is correct.
Forgot the Master Code.	<ul style="list-style-type: none"> • Connect with the software and read Master Code through the control board.
The door does not open after pressing the exit button.	<ul style="list-style-type: none"> • Make sure the installed exit button and wire connection are properly connected. • Make sure the electric door lock wire connection is correctly connected.
The door usually opens, but locks after swiping the card.	<ul style="list-style-type: none"> • Wrong door relay activation mode. Adjust the jumpers and select the proper relay mode.
The card is read in the reader of door 1, but it is door 2 that opens.	<ul style="list-style-type: none"> • Check the wire connection of door relay. • Wrong reader ID setting. ID reader 1 (Exterior) and 2 (Interior) is for door 1, ID reader 3 (Exterior) and 4 (Interior) is for door 2.
The reader's reading range is too short.	<ul style="list-style-type: none"> • It is recommended to use separate linear direct current (do not switch power). • If the reader is installed on a metallic object, add a plastic spacer of suitable thickness on the back of the reader to insulate and avoid interference. • The distance between two readers should be 1.5 times greater than the reading range to avoid radio frequency interference with each other. • If readers are installed on a thin wall, add a plastic spacer of suitable thickness on the back of the readers or change the installation location to insulate and avoid interference.
Door open after swiping card twice.	<ul style="list-style-type: none"> • The distance between the reader and the control board is too long. Make sure the reader is not more than 1200m away from the MRAC.

08. TROUBLESHOOTING

INSTRUCTIONS FOR FINAL CONSUMERS / SPECIALIZED TECHNICIANS

PROBLEM	SOLUTION
The door opens too long or locks too quickly.	<ul style="list-style-type: none">• Use the software to adjust the door relay activation time.
It does not emit a warning sound when the door has been open for too long.	<ul style="list-style-type: none">• Please activate the door sensor and set the time through the software.• Check that the door sensor installation location is sufficient or that the connection is correct.
There is no alarm when outside forces happen.	<ul style="list-style-type: none">• Please activate the door sensor and select the alarm type from the software.• Check that the location of the door sensor is sufficient and that the wire connection is correct.• Check if the alarm relay wire connection is correct.
The control board does not communicate with the PC.	<ul style="list-style-type: none">• Make sure the Led LEN is blinking, if the Led doesn't blink, check if the internet wire is correctly connected.• Search for the IP with the MOTORLINE IP TOOL software.• Check that the IP and Subnet Mask values are the same on the Control Panel and on the MRAC device.• Make sure the Control Panel IP is fixed.