



MD100

INSTALLER AND USER'S MANUAL







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01. SAFETY INSTRUCTIONS

ATTENTION:

	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.
	(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 INSTRUCTIONS

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 September 2009.

01. SAFETY INSTRUCTIONS

- 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.

SYMBOLS LEGEND:



• Important safety notices



• Useful information



• Programming information



• Potentiometer information



• Connectors information



• Buttons information

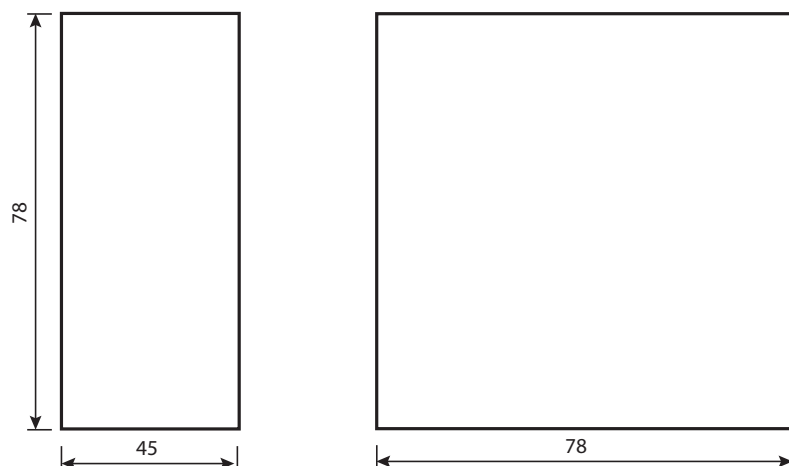
02. MAGNETIC DETECTOR

TECHNICAL CHARACTERISTICS

MD100 is a vehicle magnetic detector that detects the presence of large metal objects (cars, trucks, wagons) **even when the vehicle is not moving**.

	MD100
• Power Supply	230Vac 50/60Hz
• Reading distance	2-3m
• Sensitivity	4 degrees selectable
• Presence mode	Limited Presence / Permanent Presence
• Indicator	Power indicator: Red LED Status indicator: Green LED.
• Internal protection	Transformer isolation, voltage regulation tube, voltage dependent resistance.
• Working temperature	-20°C ~ 55°C
• Frequency	15 or 80 Mhz
• Output	2 output 5A 230Vac

The dimensions of **MD100** are the following:



03. PRE INSTALLATION

PRECAUTIONS TO HAVE



Please pay attention to the supply voltage of the equipment.
Any wrong connection will damage the product.

- The circuit and power cable must be **isolated copper wire** with a **minimum cross section of 1.5mm**.
- The power cable must be **twisted at least twenty turns per meter**.



Wire splicing is not advised. In any case, any splices should be welded and waterproofed to prevent detector malfunction. Power cables subject to electrical interference must be shielded cable grounded at the detector.

- The circuit must be square or rectangular with a **minimum distance of one meter between the two opposite sides**.
- There are usually **three turns** of wire in the circuit.



Large circuits with a circumference of more than 10 meters should have two turns, while those with a circumference of less than 6 meters should have four turns. In the case of two circuits next to each other, to avoid interference, it is recommended to install one circuit with three turns and another with four turns.

- To avoid detector malfunction due to interference, **the circuits must be at least 2 meters apart and operating at different frequencies**.

04. INSTALLATION

1 DRILL THE FLOOR

Punch the floor using a suitable tool.

(see detail A).

Then make 45 ° incisions to prevent damage to the wire.

2 PUT THE WIRE

Run 3 turns of wire in the floor circuit (see detail B).

Twist the wire segment that forms the power cable.

Fill the crack with epoxy resin or bitumen.

3 INSERT MD100

Loosen the connector and insert a suitable plate.

Retighten the connector.

Attach the MD100 to the plate and remove the cover.

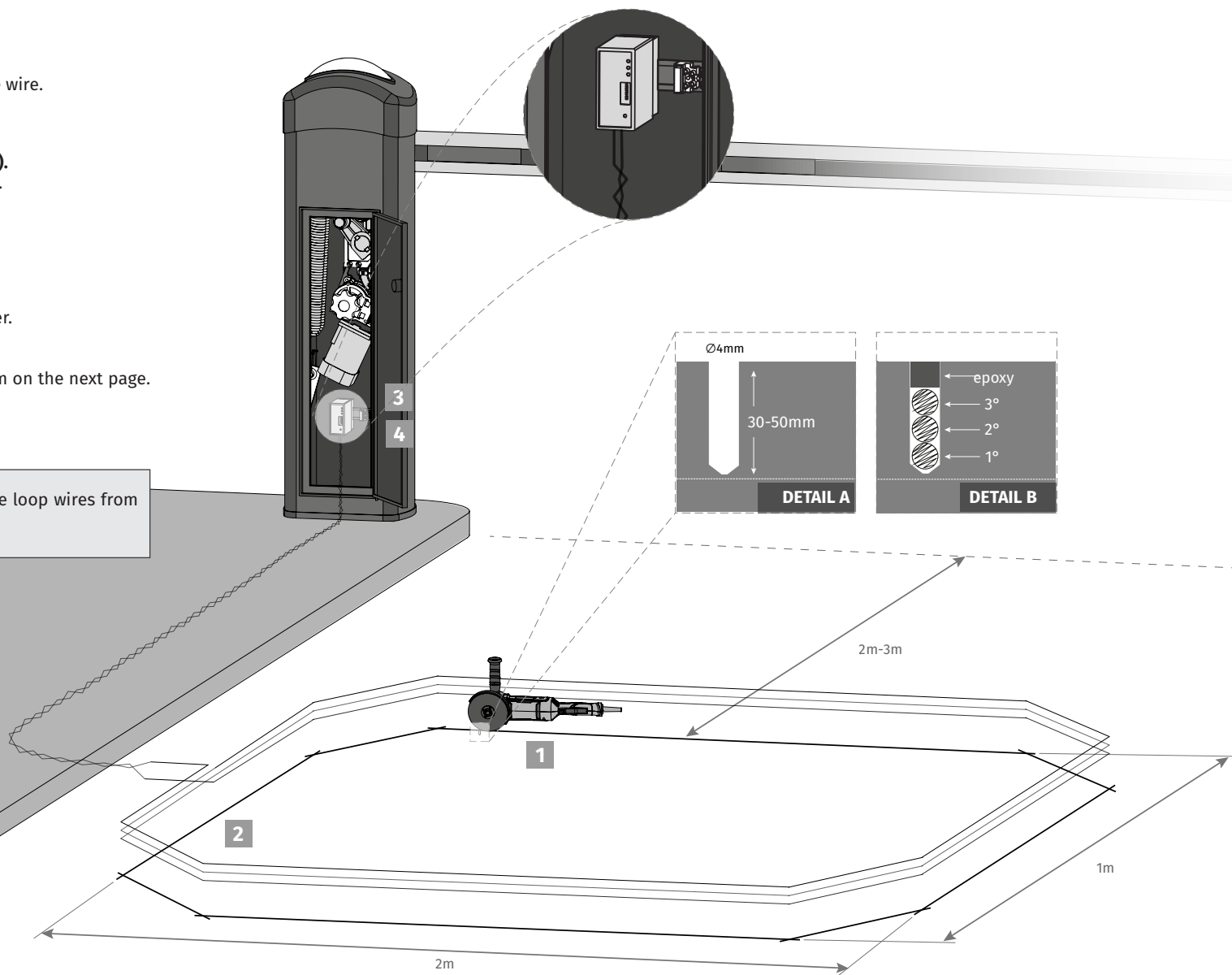
4 MAKE CONNECTIONS

Connect the cables according to the wiring diagram on the next page.

Insert the cover.

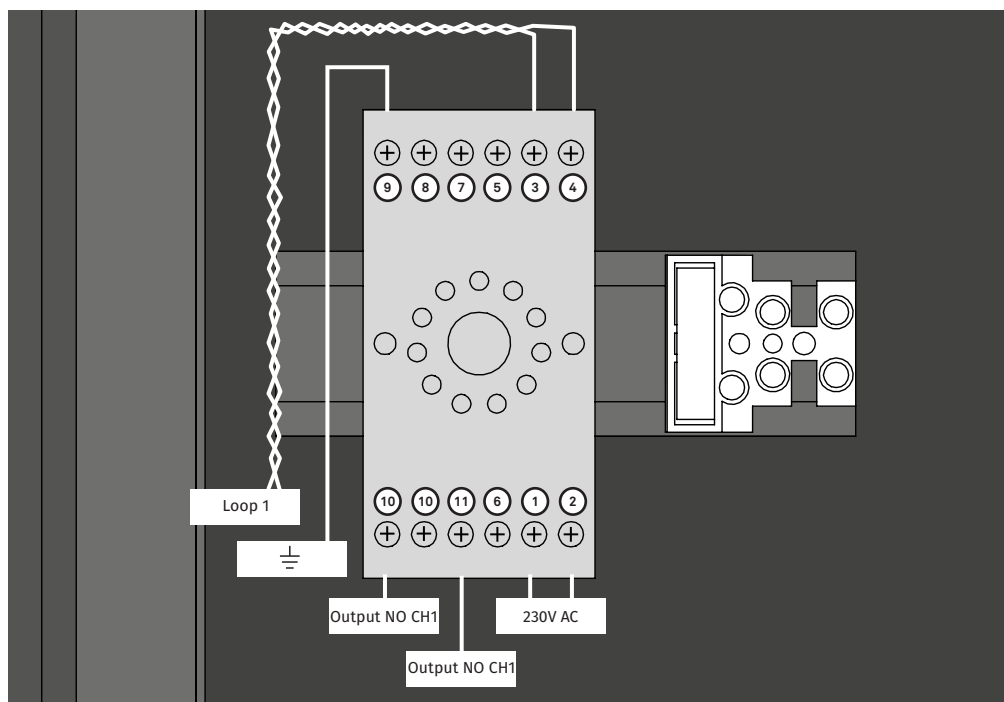


To avoid electromagnetic interference, pull the loop wires from the power wires.



05. CONNECTION SCHEME

COMPONENT CONNECTIONS



Numbers	Description
1	Input 230V (PHASE)
2	Input 230V (NEUTRAL)
3	Loop 1
4	Loop 1
5	Loop 2
6	Loop 2
7	Ouput NO CH2
8	Ouput NO CH2
9	Ground connection input
10	Ouput NO CH1
11	Ouput NO CH1

06. PROGRAMMING

FREQUENCY ADJUSTMENT

Channel 1 frequency adjustment can be achieved by Dip switch # 1 on the front panel. This depends on the geometric shape, size and number of turns of the loop.

Frequency	Dip switch #1	
Low	ON	
High	OFF	

SENSITIVITY



Channel 1 sensitivity adjustment is done using dip switch # 2 and # 3. Dip switch # 4 and # 5 regulate channel 2 sensitivity. Several factors influence sensitivity: loop length, number of turns of the loop, lead wire length and presence of metals under the loop.

Degree of sensitivity (low-high)	Dip switch #2, #3, #4, #5			
	Channel 1 (Dip switch #2, #3)		Channel 2 (Dip switch #4, #5)	
1	Dip-switch #2: ON Dip-switch #3: ON		Dip-switch #4: ON Dip-switch #5: ON	
2	Dip-switch #2: ON Dip-switch #3: OFF		Dip-switch #4: ON Dip-switch #5: OFF	
3	Dip-switch #2: OFF Dip-switch #3: ON		Dip-switch #4: OFF Dip-switch #5: ON	
4	Dip-switch #2: OFF Dip-switch #3: OFF		Dip-switch #4: OFF Dip-switch #5: OFF	

06. PROGRAMMING



AUTOMATIC INCREASE IN SENSITIVITY

Automatic sensitivity increase causes the sensitivity level to be maximum. This level is maintained as long as the car is present on the loop. When the vehicle leaves the loop and no longer detects, the sensitivity level returns to the preselected level.

ASB	Dip switch #6	
Disable	OFF	
Enable	ON	



MODE OF OPERATION CHANNEL 1 AND CHANNEL 2 RELAY

When a car enters channel 1 or channel 2, the channel 1 and 2 relay sends a presence signal and the presence time can be selected with dip switch # 7 and # 8.

Channel 1 and 2 relay operation mode	Dip switch #7 e #8	
Permanent Presence	Dip-switch #7: ON Dip-switch #8: ON	
Limited Presence	Dip-switch #7: ON Dip-switch #8: OFF	

07. INDICATORS

CONTACT RELAY MODE

Status	Channel 1 relay		Channel 2 relay	
1	NO		NO	

LED INDICATOR

Status	Channel 1 Green	Channel 2 Green	Red
Power Supply	Channel 1 and 2 LEDs light up simultaneously after which the Sensitivity indication begins.		Light - 230V Off - Without 230V
Sensitivity indicator	Channel 1 and 2 LEDs in sequence (ignition frequency = 1Hz), sensitivity = number of illuminations.		Light
Preparation for data collection	Channel 1 and 2 LEDs light up simultaneously for 2 seconds and then go out.		Light
Indicator for loop binding failures	Short circuit or frequency = 17KHz, the LED corresponding to the channel flashes (frequency = 5Hz). Operating frequency > 100Khz, the LED corresponding to the channel lights up.		Light
Beginning of detection	Off		Light
Presence of vehicle at the turn of channel 1	Light	Off	Light
No vehicle in both	Off	Off	Light
Presence of vehicle at the turn of channel 2	Off	Light	Light
Presence of vehicle on both	Light	Light	Light