



4M-BAR 6M-BAR

Ambidextrous irreversible operator for driveways



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1. GENERAL SAFETY WARNINGS

ATTENTION - FOR THE SAFETY OF PEOPLE IT IS IMPORTANT TO FOLLOW ALL THE INSTRUCTIONS KEEP THESE INSTRUCTIONS WITH CARE

1° - If it is not forecast in the electric gearcase, install a switch of magneto thermic type upstream, (omni polar with minimum opening of the contacts of 3 mm) with a check of conformity to the international standards. Such device must be protected against the accidental lockup (for example by installing inside a locked board).

2° - For the section and the type of the cables MOTRICI advises to use a cable of H05RN-F type with 1,5 sqmm minimum section and, however, to keep to the IEC 364 and installation standards in force in your country.

3° - Positioning of a possible couple of photoelectric cells: the radius of the photoelectric cells must be at a height of no more than 70 cm from the ground and at a distance not superior to 20 cm from the motion plane of the door. Their correct working must be verified at the end of the installation in accordance with the point 7.2.1 of the EN 12445

4° - To fulfill the limits set by EN 12453, and in case the peak force exceeds the normative limit of 400 N it is necessary to have recourse to the active presence survey on the whole height of the door (up to max 2,5 m) - The photoelectric cells, in this case, must be applied in accordance with the point 7.3.2.2 of the EN 12445

N.B.: The earthing of the system is obligatory.

The data described in this handbook are purely a guide.

MOTRICI reserves the right to change them in any moment.

Carry out the system in the respect of the standards and laws in force.

IMPORTANT SAFETY INSTRUCTIONS FOR THE INSTALLATION ATTENTION - THE INCORRECT INSTALLATION CAN CAUSE SERIOUS DAMAGES FOLLOW ALL INSTALLATION INSTRUCTIONS

1° - This handbook is exclusively addressed to the specialized personnel who knows the constructive criteria and the protection devices against accidents for motorized gates, doors and main doors (follow the standards and the laws in force).

2° - The installer will have to issue a handbook to the final user in accordance with the 12635.

3° - Before proceeding with the installation, the installer must forecast the risks analysis of the final automatized closing and the safety of the identified dangerous points (Following the standards EN 12453/EN 12445).

4° - Before installing the motion motor, the installer must verify that the gate is in good mechanical conditions and that it adequately opens and closes.

5° - The installer must install the member for the manual release at a height inferior to 1,8 m.

6° - The installer will have to remove possible impediments to the motorized motion of the gate (eg. door bolts, sliding bolts, door locks etc.)

7° - The installer will permanently have to put the tags warning against the deflection on a very visible point or near possible fixed controls.

8° - The wiring harness of the different electric components external to the operator (for example photoelectric cells, flashlights etc.) must be carried out according to the EN 60204-1 and the modifications to it done in the point 5.2.2 of the EN 12453.

9° - The possible assembly of a keyboard for the manual control of the movement must be done by positioning the keyboard so that the person operating it does not find himself in a dangerous position; moreover, the risk of accidental activation of the buttons must be reduced.

10° - Keep the automatism controls (push-button panel, remote control etc.) out of the children way. Command device for operating the motor (a switch manually closed) should be placed in area visible from the guided site and far from moving parts. It should be placed at least at 1,5 m height.

11° - this appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved

12° - children shall not play with the appliance

13° - cleaning and user maintenance shall not be made by children without supervision

14° - do not allow children to play with fixed controls. Keep remote controls away from children

15° - Fixed command devices should be installed in a well visible way.

16° - Before carrying out any installation, regulation or maintenance operation of the system, take off the voltage by operating on the special magneto thermic switch connected upstream.

17° - At the end of the installation, the installer will have to make sure that the parts of the door do not encumber streets or public sidewalks.



THE MOTRICI COMPANY DOES NOT ACCEPT ANY RESPONSIBILITY for possible damages caused by the non observance during the installation of the safety standards and of the laws in force at present.

2. DESCRIPTION AND COMPATIBLE ACCESSORIES

Operator raises irreversible road barrier ambidextrous electromechanical automated for opening and closing of the accesses of a driveway through rod. 4M-BAR has a 24V motor inside, with mechanical limit stop and encoder, which allows an accurate movement of the shaft indicated with LED indicators on the body and rod (both optional accessories). The control unit SMART1 24 BAR can manage 3 digital inputs for photocells, 3 digital inputs for coils, wired inputs for commands STOP - OPEN - CLOSE - SS and two 24Vdc outputs for accessories and flashing lights. In addition, a 433mhz radio receiver is already installed on board, allowing remote control of the automation. In case of power failure, 4M-BAR can continue to work in total safety thanks to the possibility to install inside a buffer battery connected directly to the control unit (optional accessory).

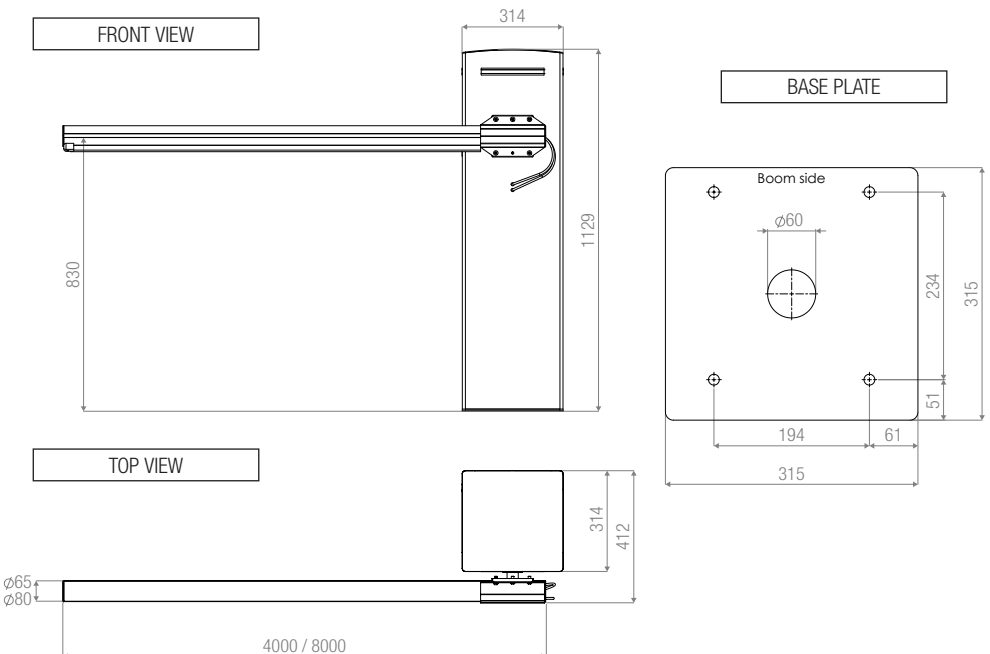
List of compatible accessories

	<p>BASE PLATE PLATE for ground fixing complete with accessories</p>	<p>12007338</p>
	<p>BOOM 4 METER No. 2 pieces of aluminum length 2.15 meters and \varnothing 65 mm Coupling for connection No. 2 black caps of cover</p>	<p>12007692</p>
	<p>BOOM 6 METER No. 2 pieces of aluminum length 3.15 meters and \varnothing 80 mm Coupling for connection No. 2 black caps of cover</p>	<p>12007693</p>
	<p>BUMPER KIT Rubber bumper 4 meters with accessories</p>	<p>12007304</p>
	<p>LIGHTS KIT for 4 METERS No. 2 led strips (length 4 meters) Opalines</p>	<p>12007303</p>
	<p>BATTERY KIT IN BOX for 4 METERS Box containing two 12V wired batteries, 7.2Ah rechargeable 1 meter cable for connections</p>	<p>12007306</p>
	<p>BATTERY KIT IN BOX for 6 METERS Box containing two 12V wired batteries, 7.2Ah rechargeable 1 meter cable for connections</p>	<p>12007307</p>

	<p>BATTERY CHARGER KIT 24V battery charger board interface with plug-in connector</p>	<p>12007302</p>
	<p>LED INTERFACE BOARD Plug-in board for 4M-BAR barrier led strip control</p>	<p>12007305</p>

3. PACKAGING LIST AND DIMENSIONS

- 4M-BAR**
CABINET including gear motor with rocker and spring already installed for 4 meter long boom, fixing “U” shape profile, screws, set of three keys, control unit SMART1 24 BAR, LED interface board and LED strip on cabinet body already wired.
- 6M-BAR**
CABINET including gear motor with rocker and springs already installed for 6 meter long boom, fixing “U” shape profile, screws, set of three keys, control unit SMART1 24 BAR, LED interface board and LED strip on cabinet body already wired.



4. PRELIMINARY VERIFICATIONS AND TECHNICAL CHARACTERISTICS

The installation must be carried out only by qualified personnel, in compliance with laws, rules and regulations and as stated in these instructions.

Before proceeding with the installation make sure that all the material to be used is in excellent condition and suitable for the intended use.

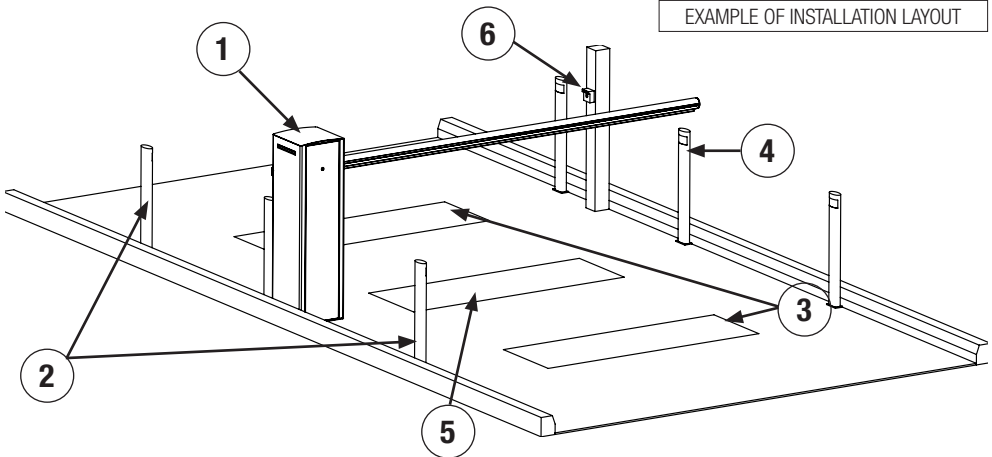
Verify that the chosen environment for the installation is compatible with the total size of the product.

Verify that the space around the automation allows an easy and safe execution of manual maneuvers.

Check that there are no obstacles along the trajectory of the rod movement that could prevent opening and closing manoeuvres.

Connect the power plant to a power supply line equipped with safety grounding.

WARNING! It is mandatory to conform the plant to the rules and laws in force.



Description:

1 - 4M-BAR

2 - Photocells

3 - Magnetic Loops

4 - Photocell to detect presence near the automation (PH3)

5 - Magnetic Loop to detect presence near the automation (S3)

6 - Key selector

Parts to install meeting the EN 12453 standard

COMMAND TYPE	USE OF THE CLOSING		
	Skilled persons (out of a public area*)	Skilled persons (public area)	Unrestricted use
with manned operation	A	B	-
with visible impulses (e.g. sensor)	C	C	C and D
with not visible impulses (e.g. transmitter)	C	C and D	C and D
automatic	C and D	C and D	C and D

* a typical example are those shutters which do not have access to any public way.

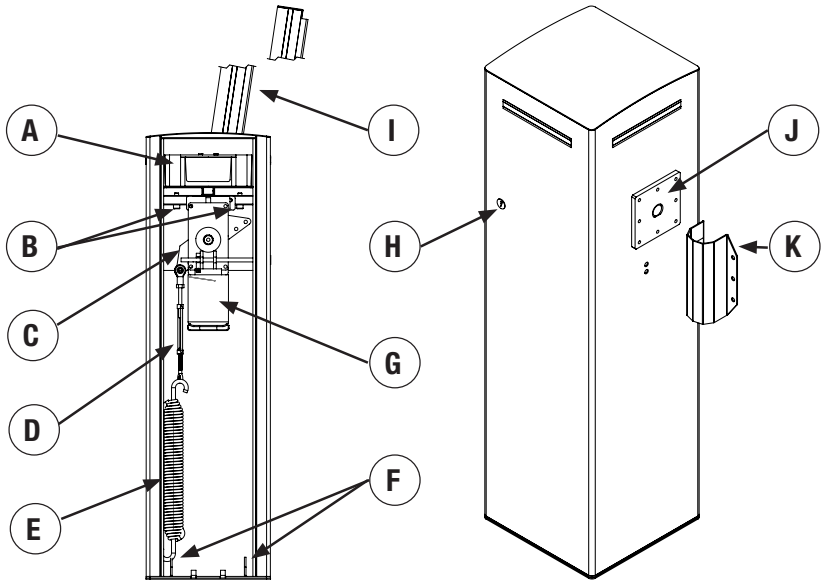
A: Command button with manned operation (that is, operating as long as activated).

B: Key selector with manned operation.

C: Safety edges and/or other safety devices to keep thrust force within the limits of EN12453 regulation - Appendix A.

D: Photocells.

4.1 BARRIER FRONTAL VIEW



Description:

- A. Control Unit Box SMART1 24 BAR
- B. Mechanical stops
- C. Rocker arm
- D. Tie-rod
- E. Balance spring
- F. Spring anchor points to cabinet
- G. Gear motor
- H. Unlocking plug with key lock
- I. Boom
- J. Hub
- K. Fixing "U" shape profile

TECHNICAL CHARACTERISTICS	U.M.	4M-BAR	6M-BAR
Control Unit power supply	Vac	230	
Frequency	Hz	50	
Control Unit		SMART1 24 BAR	
Motor power supply	Vcc	24	
Motor power consumption	A	6	
Motor power	W	140	
Opening time at 90°	sec.	3	3,5
Lenght of the pole	m	4	6
Service	%	100	
Daily cicles recommended	n°	1500	
Protection Degree	IP	44	
Overall cabinet body weight, without accessories	kg	54	

5. CABINET INSTALLATION AND ADJUSTMENTS

5.1 POSITIONING OF THE CABINET ON THE FLOOR

If the supporting surface already exists:

1. Open the closet door.
2. Place the cabinet in the existing surface and mark points at the holes where the cabinet will be fixed.
3. Move the cabinet and drill holes in the points just marked.
4. Insert four expansion anchors into the holes (not supplied).
5. Place the cabinet correctly and secure it with appropriate screws, nuts and washers (not included).

If the supporting surface not already exists:

1. Perform the foundation excavation to accommodate the foundation plate. **WARNING!** The fixing surface must be perfectly flat, smooth and of such dimensions that it can withstand the weight of the entire structure to be installed.
2. Prepare the ducts for the passage of electrical cables.
3. On the foundation plate, fix the four fangs by placing a nut and a washer on the upper and lower sides of the plate.
4. Make the casting of concrete and, before starting the grip, place the foundation plate flush of the surface, parallel to the boom and perfectly leveled.
5. Wait until the concrete is completely taken; usually, at least two weeks.
6. Remove the four upper nuts and washers from the fangs.
7. Open the cabinet and place it correctly at the brackets and pipes for the passage of electric cables.
8. Lock the cabinet with the appropriate nuts and washers just removed.

5.2 INSTALLATION OF THE BOOM WITH MOVEMENT MANOEUVRE ORIENTED TO THE LEFT

4M-BAR is an ambidextrous operator and as a factory setting is assembled with the balance spring to the left and the opening/closing lever to the right. This setting is arbitrary and if you want to install the operator so that the boom maneuver is oriented to the left proceed by carrying out the following operations.

FOR THE 4 METERS BOOM:

1. Unscrew the screw that locks the tie-rod to the rocker arm and completely remove both the tie-rod and the spring.
2. Attach one end of the spring to the bottom right anchor point inside the cabinet and the other end to the tie-rod.
3. Fix the tie-rod with the screw in the middle hole, to the right part of the rocker arm.

FOR THE 6 METERS BOOM:

Unscrew the screws that lock the tie-rods to the rocker arm and fix them on the opposite side using the outer holes.

5.3 INSTALLATION WITH LED KIT (OPTIONAL) - ONLY FOR 4 METERS VERSION

1. Take out the box of the control unit and remove the lid by unscrewing the screws. **ATTENTION!** Make sure the board is not powered before making connections.
2. Install the LED interface card in the appropriate location (in the 4M-BAR the card is already installed).
3. Pierce the black plastic cap that will covers the bottom of the boom.
4. Pass the LED power cables through the holes just made, through the cable hole of the cabinet and through the cable hole of the control box.
5. Connect the led strips to the led card.

5.4 BATTERY KIT INSTALLATION (OPTIONAL)

1. Take out the box of the control unit and remove the lid by unscrewing the screws. **ATTENTION!** Make sure the board is not powered before making connections.
2. Install the card battery interface in the appropriate location.
3. Place the battery box by attaching it to the supports inside the cabinet and pass the cables through the cable hole of the control box.
4. Connect the cables coming from the box to the card of battery interface.

5.5 ASSEMBLY AND INSTALLATION OF THE BOOM

1. Take a 2-meter pole and put the "U" shape profile on it at one end.
2. Emboss the "U" shape profile with the hub rod using the screws supplied, so that the boom is in vertical position and with the protective rubber seats facing the direction of the movement of the boom.
3. Put the cover (with the LED strip cables through if you use the LIGHTS KIT) on the bottom end of the boom.
4. Unlock the engine with the hexagonal key provided and bring the boom manually in horizontal position. **WARNING! This operation brings the spring in tension and could be very dangerous.**
5. When the boom is in horizontal position, lock the engine with the key and then release the boom gently. Depending on the internal position of the engine, the boom may rise slightly when released.
6. Insert half of the coupling in the boom, if necessary help yourself with a plastic-head hammer.
7. Drill two \varnothing 5mm holes in the boom with the drill at the groove on the joint, at least 30 mm apart from each other starting from the boom head.
8. Make a \varnothing 10 mm socket on the holes just made and fix with two screws supplied the coupling to the boom.
9. Insert in the coupling the second pole of 2 meters, if necessary help yourself with a plastic-head hammer.
10. Drill two \varnothing 5 mm holes in the second section of the boom with the drill at the groove on the joint, at least 30 mm apart from each other starting from the beginning of the boom.
11. Make a \varnothing 10 mm socket on the holes just made and fix with two screws supplied the coupling to the boom.

5.6 FINISHING AND MECHANICAL ADJUSTMENTS

1. In case you install the KIT LIGHTS, slide the LED strips in the appropriate groove on the boom and, hand by hand, close them with the opalines supplied.
2. Fasten the "U" shape profile with screws firmly to the hub.
3. Put the bottom rubber bumper by inserting it and sliding it through the guides for the entire length of the boom (if necessary help yourself with silicone oil).
4. Insert the black cap into the end of the boom.
5. Making sure that there are no people and objects within the range of the barrier, lightly press down the boom and unlock the engine with the appropriate key.
6. Gently accompany the natural movement of the boom.
7. Act on the spring tie-rod until the boom remains in equilibrium alone with an inclination from the ground of about 45°.
8. If you can not adjust the boom as the same tends to stay very close to the horizontal position proceed as follows:
 - unlock the motor;
 - bring the boom in vertical position;
 - lock the motor;
 - move the tie-rod so that it is installed in the outermost hole of the balance-bar (see procedure ch. 5.2);
 - Resume procedure from point 7 of this chapter.
9. If you can not adjust the boom as the same tends to stay very close to the vertical position proceed as follows:
 - unlock the motor;
 - bring the boom in vertical position;
 - lock the motor;
 - move the tie-rod so that it is installed in the innermost hole of the balance-bar (see procedure ch. 5.2);
 - Resume procedure from point 7 of this chapter.
10. Adjust the mechanical stops and verify the desired position of the boom bringing the bar balance in both directions, then tighten the counternuts while holding the screws. Due the tight spaces, it is recommended to use ratchet wrenches for the operation.
11. Gently leave the boom so that it brings in 45° position.
12. Lock the motor.

6. MANUAL HANDLING OF THE BOOM

WARNING! Carry out these operations only after removing the power supply to the motor.

In case of power failure, manual adjustments during the installation phase, or in case of emergency you can unlock the gearmotor so you can manually move the boom.

Insert the key into the lock and remove the unlock cap.

Making sure that there are no people and objects within the range of the barrier, lightly press down the boom.

Insert the supplied hexagon wrench and rotate it half a turn to unlock the engine.

WARNING! This operation unlocks the engine brake from the boom.

Gently accompany the natural movement of the boom.

ATTENTION! In case of special situations where it was necessary to manually move the boom, once the system is restored it is recommended to perform the learning procedure again (see Chapter 7.1).

7. ELECTRICAL CONNECTIONS AND INITIAL OPERATION

Open the cabinet and pull out the box containing the control unit.

Pass the power cables through the cable gland inside the control box and connect them to the power transformer terminal board.

Then switch ON power supply the control unit.

7.1 LEARNING PROCEDURE

Check that the boom is inclined to 45° relative to the ground, otherwise refer to the procedure of FINISHING AND MECHANICAL ADJUSTMENTS (Chapter 5.6).

Simultaneously press the UP and MENU keys to start machine learning.

4M-BAR handles an opening as before. Check that the boom also opens in the opening otherwise press DOWN to block the automation and press SS to reverse the movement.

It will be made, after the first opening, a closing and an opening at normal speed. After that, it will make a last closing movement with slowdown. The slowdowns are automatically calculated by the control unit, and can then be adjusted. Ensure that throughout the learning process, boom handling takes place in complete safety and that there are no interventions of safety devices that block the learning. In the latter case turn off the automation, manually bring the boom back to 45° respect the ground and start a new learning procedure.