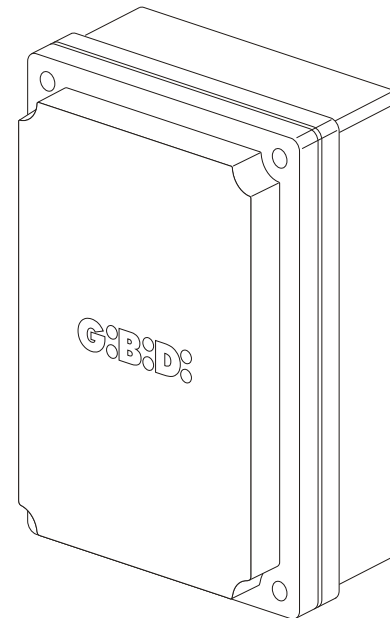




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- This product has been tested in Gi.Bi.Di. verifying the perfect correspondence of the characteristics to the current directive.
- Gi.Bi.Di. S.r.l. reserves the right to modify the technical data without prior notice depending on the product development.



PLEASE READ CAREFULLY THIS MANUAL BEFORE PROCEEDING WITH THE INSTALLATION.

Cod. AIC4976 - 06/2008 - Rev. 00



:BA24



BA24 - (AS05100)

Electronic control unit
INSTRUCTIONS FOR
INSTALLATIONS

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ISO 9001 Cert. N. 0079



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Control unit	BA24 / AS05100
Type	Electronic control unit for the automation of one or two motors - 24V dc - for swinging and sliding gates, overhead garage doors and barriers
Power supply	230Vac monophas 50/60 Hz
N° motors	1 or 2
Motor power supply	24 Vdc
Flashing light	24Vdc 10W max
Warning light	24Vdc 3W max
Accessories power supply	24Vdc 8W max including safety device power supply
Safety device power supply	24Vdc 8W max including accessories power supply
Radio receiver	Plug-in
Operating temperature	-20°C +60°C

TECHNICAL SPECIFICATIONS / FUNCTIONS

- Red warning LEDs of N.C. contacts. There isn't the safety devices LED; the possible anomaly is indicated by the writing SAF on the LCD.
- Green warning LEDs of N.A. contacts.
- Two electrical locks management.
- Safety test run before the opening and closing movement.
- Photocell 1 test run before the opening and closing movement.
- Amperometric circuit test run before the opening and closing movement.
- Stop and motion inversion for 2 seconds after intervention of the safety devices. At the next Start pulse the motion restarts in the obstacle freeing direction.
- SEPARATE SAFETY DEVICES POWER SUPPLY Connect the safety devices that must be tested to this clamp.

Digital programming of all functions.

- Working time adjustable independently in opening and closing for each single motor.
- Deceleration time adjustable independently in opening and closing for each single motor in the final motion phase.
- Gate phase shift time adjustable independently in opening and closing.
- Adjustable pedestrian working time.
- Pause time adjustable and differentiated for complete or pedestrian opening.
- Thrust force adjustable on 10 levels for each motor.
- Decelerations selectable and adjustable independently on 10 levels for each motor.
- Absorption (anti-crushing) control adjustable on 100 levels for each single motor both in thrust phase and in deceleration phase.
- Deceleration enable modes: with single or double limit switch.
- 4 possible working functions (step-by-step, step-by-step with stop, condominium or automatic, dead-man).
- Possibility of choosing the system configuration from swing gate (single or double), overhead/barrier and sliding gate (single or double).

- SAFETY DEVICE choice with N.C. contact or 8K2 resistive.
- Anti-crushing enabling (motion inversion for 2 seconds and stop) or amperometric detection for limit switch.
- Specific menu for the exclusion of the accessories not used (picture 1, picture 2 and safety devices).
- Possibility to program: automatic closing, fast closing, pre-flashing, hammer stroke, final closing and opening stroke, courtesy light, ending movement additional time, flashing light (both flashing and fixed), external clock management with three different modes, number of cycles for scheduled maintenance, installer code and number of performed cycles.
- Time self-learning.

INSTALLATION

Use glands adequate to ensure proper mechanical connection of cable and maintain the box protection degree IP55.
(2)

INSTALLATION WARNINGS

- Before proceeding with the installation, fit a magnetothermal or differential switch with a maximum capacity of 10A upstream of the system. The switch must guarantee omnipolar separation of the contacts with an opening distance of at least 3 mm.
- To prevent possible interference, differentiate and always keep the power cables (minimum cross-section 1.5 mm²) separate from the signal cables (minimum cross-section 0.5 mm²).
- Make the connections referring to the following tables and to the attached screen-print. Be extremely careful to connect in series all the devices that are connected to the same N.C. (normally closed) input, and in parallel all the devices that share the same N.O. (normally open) input. Incorrect installation or improper use of the product may compromise system safety.
- Keep all the materials contained in the packaging away from children, since they pose a potential risk.
- The manufacturer declines all responsibility for improper functioning of the automated device if the original components and accessories suitable for the specific application are not used.
- After installation, always check carefully proper functioning of the system and the devices used.
- This instruction manual addresses people qualified for installation of "live equipment". Therefore, good technical knowledge and professional practice in compliance with the regulations in force are required.
- Maintenance must be carried out by qualified personnel.
- Before carrying out any cleaning or maintenance operation, disconnect the control unit from the mains.
- This control unit may only be used for the purpose for which it was designed. Check the aim of the final use and make sure that all safety measures are taken.
- If the control equipment is installed on doors or leaves with wicket door, make sure that in case the wicket door is open, the equipment is not allowed to work.
- Use of the product for purposes different from the intended use has not been tested by the manufacturer, therefore any work is carried out on full responsibility of the installer.
- Mark the automated device with visible warning plates.
- Warn the user that children or animals may not play or stand around near the gate.
- Appropriately protect the danger points (for example, using a sensitive frame).
- The only control equipment does not guarantee anti-crushing safety. Please make sure that the security devices connected to the control equipment are suitable for this purpose.

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WARNINGS FOR THE USER

In the event of an operating fault or failure, cut the power upstream of the control unit and call Technical Service. Periodically check functioning of the safety devices. Any repairs must be carried out by specialised personnel using original and certified materials.
The appliance is not to be used by children or people with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction



WARNING: IMPORTANT SAFETY INSTRUCTIONS

It is very important to follow the present instructions for your own safety.
Please keep this manual.

ELECTRICAL CONNECTIONS: FASTONS

1	CF1 CF2	Secondary connection of 24Vac transformer
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COLLEGAMENTI ELETTRICI: MORSETTIERE

Terminal	Position	Signal	Description
JP1	1	AC	Battery charger equipment connection
	2	AC	Battery charger equipment connection
	3	+SK	Battery charger equipment connection
	4	-SK	Battery charger equipment connection
	5	M1	Motor 1
	6	M1	Motor 1
	7	M2	Motor 2
	8	M2	Motor 2
	9	LAMP	Flashing light output 24V 10W max.
	10	LAMP	Flashing light output 24V 10W max.
JP4	11	COM	Electric lock negative (common)
	12	EL1	Electric lock 1 +24 Vdc positive - motor 1
	13	EL2	Electric lock 2 +24 Vdc positive - motor 2
	14	COM	External accessory power supply negative (common)
	15	SPIA	Warning light output 24Vcc 3W MAX
	16	+ ACC	+24Vcc external accessory power supply (photocells, radio, etc.)
	17	+ SAF	+24Vcc external safety device power supply.
JP3	18	START	START input (N.O.)
	19	PED	PEDESTRIAN input (N.O.) After an emergency intervention (SAFETY or AMPEROMETRIC) with motion inversion of the second leaf, the pedestrian command will activate both leaves to prevent them from overlapping.

Working:
Fast flashing in opening, off during pause, fast flashing in closing

JP3	20	STOP	STOP input (N.C.). If not used, jumper with terminal n° 29.	
	21	FCAM1	Opening limit switch input - motor 1 (N.C.). If not used, disable during programming.	
	22	FCCM1	Closing limit switch input - motor 1 (N.C.). If not used, disable during programming.	
	23	FCAM2	Opening limit switch input - motor 2 (N.C.). If not used, disable during programming.	
	24	FCCM2	Closing limit switch input - motor 2 (N.C.). If not used, disable during programming.	
	25	PH2	PHOTOCELL 2 input (N.C.). If not used, disable during programming. Operation: Input active during both opening and closing. If intercepted, it immediately stops the motion and holds it stopped until the photocell is freed. Upon release, motion always restarts in opening. If intercepted when the gate is closed, following a Start command, it does not allow opening the gate and it will be signalled with 5 fast flashes, then the warning light turns on to indicate that the gate is not in stand-by. Upon release, the gate will start opening without further commands. If intercepted during pause, it reloads the pause time.	
	26	PH1	PHOTOCELL 1 input (N.C.). If not used, disable during programming. Operation: Input active only during closing. It stops and inverts the motion, opening the gate completely. If the gate is closed, it does not affect its functioning. If intercepted during pause, it reloads the pause time.	
	27	RESERVE	Multifunctional input.	External clock: SEE PROGRAMMING C16-C17-C18
	28	EDGE	SAFETY DEVICES input (see menu C9) If not used, disable during programming. Operation: Input active during both opening and closing. It stops and inverts the motion for 2 sec. The gate will remain locked until the next Start pulse, which will restart it in the obstacle freeing direction. When active in stand-by, after the start/pedestrian command the door does not move and 3 long flashes (2 sec.) will signal the anomaly. If active in pause, the door does not close automatically (if expected) and 3 long flashes (2 sec.) will signal the anomaly. THE EDGE ACTIVATION IS SIGNALLED BY THE WRITING "SAF" ON THE LCD.	
	29	COM	Common inputs-outputs	
JP5	30	GND	ANTENNA BRAID input	
	31	ANT	ANTENNA SIGNAL input	

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PROTECTION FUSES

Position	Value	Type	Description
F1	10 A	/	Accessories and motor protection, power supply from battery charger circuit.
F2	10 A	/	Equipment, motor and safety devices protection.
F3	500 mA	FAST	Accessories protection.

PROGRAMMING PROCEDURE AND SYSTEM CONFIGURATION

The system adjustments can be accessed via the display. There are 5 different menus marked with the letters A, C, F, H and E.

<div style="border: 1px solid black; padding: 10px; text-align: center;"> <div style="display: flex; justify-content: space-between; border-bottom: 1px solid black; margin-bottom: 5px;"> —Gbd— </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> - ESC OK + </div> </div>	<div style="border: 1px solid black; padding: 5px;"> 1 </div> <p>To enter the programming procedure:</p> <ul style="list-style-type: none"> - start from the display as is shown in the picture - Press simultaneously the keys ESC and OK for 3 seconds (The writing Gbd will turn off)
<div style="border: 1px solid black; padding: 10px; text-align: center;"> <div style="display: flex; justify-content: space-between; border-bottom: 1px solid black; margin-bottom: 5px;"> —PASS— </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> - ESC OK + </div> </div>	<div style="border: 1px solid black; padding: 5px;"> 2 </div> <p>The writing P A S S appears on the display.</p> <p>Press the OK button to go to step 3.</p> <p>Press the ESC button to exit and return to step 1.</p>
<div style="border: 1px solid black; padding: 10px; text-align: center;"> <div style="display: flex; justify-content: space-between; border-bottom: 1px solid black; margin-bottom: 5px;"> —0 0 0 0— </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> - ESC OK + </div> </div>	<div style="border: 1px solid black; padding: 5px;"> 3 </div> <p>4 figures appear on the display (0 0 0 0), the first one is flashing.</p> <p>With the + or – keys, the user selects the first digit of the installer code.</p> <p>When the required digit is selected, press the OK key to confirm and go to step 4.</p>
<div style="border: 1px solid black; padding: 10px; text-align: center;"> <div style="display: flex; justify-content: space-between; border-bottom: 1px solid black; margin-bottom: 5px;"> —4 0 0 0— </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> - ESC OK + </div> </div>	<div style="border: 1px solid black; padding: 5px;"> 4 </div> <p>The second figure is flashing.</p> <p>With the + or – keys, the user selects the second digit of the installer code.</p> <p>When the required digit is selected, press the OK key to confirm and go to step 5.</p>

	5
<div><div>4 6 0 0</div><div><div>-</div><div>ESC</div><div>OK</div><div>+</div></div></div>	<p>The third figure is flashing.</p> <p>With the + or – keys, the user selects the third digit of the installer code.</p> <p>When the required digit is selected, press the OK key to confirm and go to step 6.</p>
	6
<div><div>4 6 8 0</div><div><div>-</div><div>ESC</div><div>OK</div><div>+</div></div></div>	<p>The last figure is flashing.</p> <p>With the + or – keys, the user selects the last digit of the installer code.</p> <p>When the required digit is selected, press the OK key to confirm and go to step 7.</p>
	7
<div><div>4 6 8 3</div><div><div>-</div><div>ESC</div><div>OK</div><div>+</div></div></div>	<p>Now the installer code is complete: go to step 8.</p> <p>If the installer code is not correct, go back to step 2.</p>

MENÙ A	8
<div><div>A C F H E</div><div><div>-</div><div>ESC</div><div>OK</div><div>+</div></div></div>	<p>The 5 main menus appear on the display (letters A C F H E); the A is flashing.</p> <p>With the + or – keys you can select the other menus (the relative letter will blink).</p> <p>Press the OK key to enter the selected menu (in the example A).</p>
	9
<div><div>A 5 Y</div><div><div>-</div><div>ESC</div><div>OK</div><div>+</div></div></div>	<p>Use the + and + keys to enter the submenu (A1, A2, A3, A4,...)</p> <p>Use the OK key to confirm the selected menu; a "Y" will appear next to the menu name to indicate that it is enabled.</p>

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	10
<div style="border: 1px solid black; padding: 10px; text-align: center; margin: 10px auto; width: 200px;">A 5</div> <div style="display: flex; justify-content: center; gap: 10px; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px 10px;">-</div> <div style="border: 1px solid black; padding: 2px 10px;">ESC</div> <div style="border: 1px solid black; padding: 2px 10px;">OK</div> <div style="border: 1px solid black; padding: 2px 10px;">+</div> </div>	<p>Use the + and – keys to see the other submenus of the A menu; follow the procedure as before.</p> <p>Press the ESC key to return to the higher level (menu A, C, F, H E).</p>

MENÙ C	11
<div style="border: 1px solid black; padding: 10px; text-align: center; margin: 10px auto; width: 200px;">A C F H E</div> <div style="display: flex; justify-content: center; gap: 10px; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px 10px;">-</div> <div style="border: 1px solid black; padding: 2px 10px;">ESC</div> <div style="border: 1px solid black; padding: 2px 10px;">OK</div> <div style="border: 1px solid black; padding: 2px 10px;">+</div> </div>	<p>When the 5 main menus are shown on the display (letters A C F H E) and the C is blinking;</p> <p>Press the OK key to enter the selected menu (in the example C).</p>

	12
<div style="border: 1px solid black; padding: 10px; text-align: center; margin: 10px auto; width: 200px;">C 1 Y</div> <div style="display: flex; justify-content: center; gap: 10px; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px 10px;">-</div> <div style="border: 1px solid black; padding: 2px 10px;">ESC</div> <div style="border: 1px solid black; padding: 2px 10px;">OK</div> <div style="border: 1px solid black; padding: 2px 10px;">+</div> </div>	<p>Use the + and – keys to select the submenu.</p> <p>Press the OK button in sequence to:</p> <p>enable the input (the Y will appear next to C1)</p> <p>disable the input (the N will appear next to C1)</p>

MENÙ H	13
<div style="border: 1px solid black; padding: 10px; text-align: center; margin: 10px auto; width: 200px;">A C F H E</div> <div style="display: flex; justify-content: center; gap: 10px; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px 10px;">-</div> <div style="border: 1px solid black; padding: 2px 10px;">ESC</div> <div style="border: 1px solid black; padding: 2px 10px;">OK</div> <div style="border: 1px solid black; padding: 2px 10px;">+</div> </div>	<p>Enter the H1 submenu to see the setting of the numeric value.</p> <p>Use the + and – keys to select the menu H; it will blink.</p> <p>Use the OK key to enter the menu.</p>

	14
<div style="border: 1px solid black; padding: 10px; text-align: center; margin: 10px auto; width: 200px;">H 1</div> <div style="display: flex; justify-content: center; gap: 10px; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px 10px;">-</div> <div style="border: 1px solid black; padding: 2px 10px;">ESC</div> <div style="border: 1px solid black; padding: 2px 10px;">OK</div> <div style="border: 1px solid black; padding: 2px 10px;">+</div> </div>	<p>Use the + and – keys to select the various submenus.</p> <p>Use the OK key to enter the selected submenu.</p>

<div><div>0 1 0 0</div><div><div>-</div><div>ESC</div><div>OK</div><div>+</div></div></div>	<p>15</p> <p>The stored value appears with the first digit blinking.</p> <p>Use the + or - buttons to modify the value of this digit.</p> <p>Use the OK key to confirm and go to step 16.</p>
<div><div>0 1 0 0</div><div><div>-</div><div>ESC</div><div>OK</div><div>+</div></div></div>	<p>16</p> <p>The second digit blinks.</p> <p>Use the + or - buttons to modify the value of this digit.</p> <p>Confirm with the OK button and go to step 17.</p>
<div><div>0 1 0 0</div><div><div>-</div><div>ESC</div><div>OK</div><div>+</div></div></div>	<p>17</p> <p>The third digit blinks.</p> <p>Use the + or - buttons to modify the value of this digit.</p> <p>Confirm with the OK button and go to step 18.</p>
<div><div>0 1 5 0</div><div><div>-</div><div>ESC</div><div>OK</div><div>+</div></div></div>	<p>18</p> <p>The fourth digit blinks.</p> <p>Use the + or - buttons to modify the value of this digit.</p> <p>Confirm with the OK button and go to step 19.</p>
<div><div>H 1</div><div><div>-</div><div>ESC</div><div>OK</div><div>+</div></div></div>	<p>19</p> <p>The H1 menu indication reappears.</p> <p>Now press the ESC button to return to the higher level.</p>

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<p>MENÙ E</p> <div style="border: 1px solid black; padding: 10px; text-align: center; margin: 10px auto; width: 150px;">ACFHE</div> <div style="display: flex; justify-content: center; gap: 10px; margin-top: 10px;"> - ESC OK + </div>	<p>20</p> <p>Enter the submenu E to see the ENABLING/DISABLING setting.</p> <p>Press the OK key to enter the menu.</p>
<div style="border: 1px solid black; padding: 10px; text-align: center; margin: 10px auto; width: 150px;">E 1 Y</div> <div style="display: flex; justify-content: center; gap: 10px; margin-top: 10px;"> - ESC OK + </div>	<p>21</p> <p>E1 = PHOTOCELL 1</p> <p>Press the OK button in sequence to: enable the input (the Y will appear next to E1) disable the input (the N will appear next to E1)</p> <p>Use the + and – keys to enter the following or the previous menu. Use the ESC key to exit the menu; “ACFHE” is now shown on the display.</p>
<div style="border: 1px solid black; padding: 10px; text-align: center; margin: 10px auto; width: 150px;">E 2 Y</div> <div style="display: flex; justify-content: center; gap: 10px; margin-top: 10px;"> - ESC OK + </div>	<p>22</p> <p>E2 = PHOTOCELL 2</p> <p>Press the OK key in sequence to: enable the input (the Y will appear next to E2) disable the input (the N will appear next to E2)</p> <p>Use the + and – keys to enter the following or the previous menu. Use the ESC key to exit the menu; “ACFHE” is now shown on the display.</p>
<div style="border: 1px solid black; padding: 10px; text-align: center; margin: 10px auto; width: 150px;">E 3 Y</div> <div style="display: flex; justify-content: center; gap: 10px; margin-top: 10px;"> - ESC OK + </div>	<p>23</p> <p>E3 = SAFETY DEVICE (EDGE)</p> <p>Press the OK key in sequence to: enable the input (the Y will appear next to E3) disable the input (the N will appear next to E3)</p> <p>Use the + and – keys to enter the following or the previous menu. Use the ESC key to exit the menu; “ACFHE” is now shown on the display.</p>
<div style="border: 1px solid black; padding: 10px; text-align: center; margin: 10px auto; width: 150px;">ACFHE</div> <div style="display: flex; justify-content: center; gap: 10px; margin-top: 10px;"> - ESC OK + </div>	<p>24</p> <p>Press the ESC button again to store the settings and exit the programming phase by accessing normal operation.</p>

	25
<div><div><div>- -</div><div>- Gbd -</div><div>- -</div></div><div><div>-</div><div>ESC</div><div>OK</div><div>+</div></div></div>	<p>The symbols shown at the beginning reappear.</p> <p>In this case, the +, - and OK buttons have the following meanings:</p> <div><div>+ » START</div><div>- » PEDESTRIAN</div><div>OK » STOP</div></div>

MENU A: SYSTEM CONFIGURATION AND OPERATING LOGIC SELECTION

KEY + : enters the following menu A1-A2-A3...

KEY - : enters the previous menu A3-A2-A1...

KEY ESC: leaves the menu

KEY OK: enables Y (yes). It activates the function, and automatically disables the complementary function (example: The activation of A4 = 1 motor automatically disactivates A5 = 2 motors).

Menu	Function	State	Description
A1	FREE		
A2	SWING GATE / OVERHEAD DOOR / BARRIER	Y	It configures the system for swing gate, overhead door or barrier. The activation of this menu automatically disables A3.
A3	SLIDING GATE	Y	It configures the system for a sliding gate. This configuration automatically excludes: <ul style="list-style-type: none">• gate phase shifts in opening and closing• hammer stroke• 2 seconds final opening and closing stroke.• T3 additional time NOTE: the limit switches are NOT activated automatically, choose the best configuration with the menu C5
A4	1 MOTOR CONFIGURATION	Y	It configures the system for one motor. With this setting, the outputs for the electrical lock 2 can be used for a 3-minutes timed courtesy light. The activation of this menu automatically disables A5.
A5	2 MOTORS CONFIGURATION	Y	It configures the system for two motors. The activation of this menu automatically disables A4.

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A6	STEP BY STEP WITH STOP LOGIC	E	<p>It enables the STEP BY STEP WITH STOP logic</p> <p>Operation: Start → open Next Start → stop Next Start → close Next Start → open</p> <p>If automatic closing has been activated (menu C1) and the opening phase is at the end of the cycle, when the pause time has elapsed (menu H9), the control unit automatically closes the gate. If the gate is open "Start" closes the gate. Pedestrian is uninfluential during opening. It will be active in pause if the pedestrian automatic closing is disabled. In closing, it opens 1 or 2 leaves depending on menu C14.</p> <p>The activation of this menu automatically disables A7-A8-A9.</p>
A7	STEP BY STEP LOGIC	Y	<p>It enables the STEP BY STEP logic</p> <p>Operation: Start → open Next start → close Next start → open</p> <p>If automatic closing has been activated (menu C1) and the opening phase is at the end of the cycle, when the pause time has elapsed (menu H9), the control unit automatically closes the gate. If the gate is open, "Start" closes the gate.</p> <p>Pedestrian is uninfluential during opening. It will be active in pause if the pedestrian automatic closing is disabled. In closing it opens 1 or 2 leaves depending on menu C14</p> <p>The activation of this menu automatically disables A6-A8-A9.</p>
A8	AUTOMATIC/ CONDOMINIUM LOGIC	Y	<p>It enables the AUTOMATIC/CONDOMINIUM logic</p> <p>Operation: Start → open Next start(s) → uninfluential if the system is opening, or it reset the pause time (if the gate is in pause and the automatic closing is activated).</p> <p>When the pause time has elapsed: If the automatic closing is activated, the system closes automatically. If the automatic closing is not activated, a "Start" or a Pedestrian command close the gate (if the opening is pedestrian).</p> <p>Pedestrian is uninfluential during opening. It will be active in pause if the pedestrian automatic closing is disabled. In closing it opens 1 or 2 leaves depending on menu C14.</p> <p>The activation of this menu automatically disactivates A6-A7-A9.</p>

A9	DEAD MAN LOGIC	Y	<p>It activates the DEAD MAN logic</p> <p>Operation: Start → opens only if the Start key is held down. Pedestrian → closes only if the Pedestrian key is held down.</p> <p>In Dead Man's mode the keys on the control unit assume the following meanings: + key → open - key → close</p> <p>The opening and closing movements in the dead man's mode stop always on the first limit switch. Deceleration is never activated.</p> <p>The only possible regulations are: PHASE SHIFT IN OPENING – PHASE SHIFT IN CLOSING – MOTOR POWER 1 AND 2 – AMPEROMETRIC LEVEL MOTOR 1 AND 2</p> <p>If the keys are continuously held down, the flashing light remains active even if the motors stopped on the limit switches. Two motors always working. The activation of this menu automatically disables A6-A7-A8.</p>
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MENU C: FUNCTION SELECTION

KEY +: enters the following menu C1-C2-C3...

KEY - : enters the previous menu C3-C2-C1...

KEY ESC: leaves the menu

KEY OK: activates Y (yes) / disactivates (N) the function.

Menu	Function	Status	Description
C1	AUTOMATIC CLOSING	YT	Enables total automatic closing H9. Enables pedestrian automatic closing H11. Pedestrian key uninfluential when in pause.
		YS	Enables only total automatic closing H9. If the pedestrian opening is activated, the pedestrian key determines the closing.
		YP	Enables only pedestrian automatic closing H11. The pedestrian input is uninfluential in pause
		N	Disables the automatic closing. If the pedestrian opening is activated, the pedestrian key will cause the closing. If the total opening is activated, the "Start" will cause the closing and the pedestrian key will be uninfluential.
C2	FAST CLOSING	Y	Enables fast closing function. Operation: Active only on photocell 1. Reduces the pause time to 3 seconds following interception and subsequent freeing of the photocells.
		N	It disables the fast closing function

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C3	PRE-FLASHING	Y	Enables 3-second pre-flashing before motor start
		N	Disables pre-flashing. The flashlight and the motors start at the same time.
C4	SAFETY DEVICES TEST	Y	<p>Enables the safety devices test. See also menu C20. When the device is activated (edge intercepted), the writing SAF appears on the LCD</p> <p>Operation: PHASE 1: when the Start or the Pedestrian command is given, the amperometric circuit is tested. If an anomaly is detected, it will be indicated by 4 long flashing (2 sec.) of the flashing light. PHASE 2 : If the edge with N.C. contact is enabled, when the Start or Pedestrian command is given, the power to the safety devices is cut off for 0,5 seconds and then restored: if the inputs of the safety devices open and immediately return N.C., the motors start, otherwise a fault is signalled with 3 long flashes (2 sec.). PHASE 3 : if the edge 8K2 is enabled, when the Start or the Pedestrian command is given, the SAFETY DEV. Input is tested (value 8K2). If the value is not correct, the fault is signalled with 2 long flashes (2 sec.). WARNING: The indication of the fault detected will be only one (the first one to be detected) even if there is more than one fault.</p>
		N	Disables the safety devices test.
C5	LIMIT SWITCH	E1	Enables the single limit switch reading. See the paragraph "LIMIT SWITCHES USE"
		E2	Enables the double limit switch reading. See the paragraph "LIMIT SWITCHES USE"
		N	Disables the limit switch reading.
C6	DECELERATION	Y	Enables the deceleration function
		N	Disables the deceleration function
C7	HAMMER STROKE	Y	<p>Enables the hammer stroke function to allow the electrical lock release.</p> <p>Operation: When the Start command is given, the sequence is: - Electrical lock activation - Start motion in closing for 1 s - opening - after 2 s electronical lock release Not activated with the sliding configuration</p>
		N	Disables the hammer stroke function

C8	FINAL OPENING AND CLOSING STROKE	Y	<p>Enables the final opening and closing stroke.</p> <p>Operation: At the end of the working time during opening and closing without deceleration, a 2 s pulse is given with the power set in menus F1 and F5. When deceleration is active, the pulse is given at the end of the deceleration time. The final stroke is regulated by the amperometric level in menus F3 and F7. The final stroke is not controlled by the safety devices (edge/anti-crushing). Not active with the sliding configuration.</p>
		N	Disables the final closing stroke in opening and closing
C9	SAFETY DEVICE	8K2	Enables the edge provided with 8K2 in series resistance
		NC	Enables the edge provided with the N.C. contact (normally closed)
C10	ANTI-CRUSHING / LIMIT SWITCH AMPEROMETRIC	Y1	ABILITATO AMPEROMETRICA DI FINE CORSA (The amperometric inverts the motion). NOTE: ENABLE THE ANTI-CRUSHING ONLY IF ALSO THE LIMIT SWITCHES ARE ENABLED.
		Y2	ENABLED LIMIT SWITCH AMPEROMETRIC (The amperometric stops the motion)
		N	Anti-crushing not enabled
C11	COURTESY LIGHT WITH TWO MOTORS	Y	<p>Courtesy light activated with 2 motors.</p> <p>Operation: Active on the electrical lock output 2 for 3 minutes after the end of the motors movement.</p>
		N	Courtesy light not activated with 2 motors.
C13	T3 ADDITIONAL TIME	N	T3 excluded.
		YF	T3 = time set for deceleration (H3 – H6) with the same menu F1 and F5 settings
		YS	T3 = time set for deceleration (H3 – H6) with the same menus F2 and F6 settings
C14	INVERSION FROM PEDESTRIAN	Y	During the PEDESTRIAN closing, the PHOTO 1 – PHOTO 2 – PEDESTRIAN command opens only the pedestrian. The START command causes the complete opening.
		N	During the PEDESTRIAN closing, the PHOTO 1 – PHOTO 2 – PEDESTRIAN – START command causes the complete opening.
C15	FLASHING LIGHT	Y	Blinking flashing light output.
		N	Fixed flashing light output.

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C16	EXTERNAL CLOCK CLOSING ALLOWED (set automatic closing)	Y	<p>Enables the RESERVE input for the connection of an external clock.</p> <p>Operation: When the clock closes the contact on the RESERVE input, following a START command the door will open but not close automatically. When the contact on the RESERVE input is opened, the door will automatically close after the pause time. When the door is open, the closing command can be given with "start" if the menu is STEP-BY-STEP or STEB-BY-STEP with STOP.</p> <p>WARNING: remember to preset the automatic closing</p>
		N	Disables the RESERVE input
C17	EXTERNAL CLOCK CLOSING NOT ALLOWED (set automatic closing)	Y	<p>Enables the RESERVE input for the connection of an external clock.</p> <p>Operation: When the clock closes the contact on the RESERVE input, following a START command the door will open but not close automatically. When the contact on the RESERVE input is opened, the door will automatically close after the pause time. It is not possible to activate the closing with the "start" command.</p> <p>WARNING: remember to preset the automatic closing.</p>
		N	Disables the RESERVE input
C18	EXTERNAL CLOCK AUTOMATIC OPENING AND CLOSING COMMAND	Y	<p>Enables the RESERVE input for the connection of an external clock.</p> <p>Operation: When the clock closes the contact on the RESERVE input, an opening command will automatically be activated without needing to give a START command. When the contact on the RESERVE input is opened, the door will automatically close after the pause time.</p> <p>WARNING: remember to preset the automatic closing.</p>
		N	Disables the RESERVE input
C20	PHOTOCELL 1 TEST	Y	<p>Enables the Photocell 1 test.</p> <p>The photocell 1 transmitter must be connected to the clamps 14 and 17.</p> <p>Operation: When the "Start" or the "Pedestrian" command is given, the power to safety devices is cut off for 0,5 and then restored: if the photocell 1 input opens and immediately returns NC the motors start, otherwise a fault will be signalled by 4 blinks (1 sec.) of the flashing light.</p>
		N	Disables photocell 1 test.

C21	AUTOMATIC PROGRAMMING	Y	Enables times programming. Operation: See "Times self-learning Procedure"
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MENU F: FORCE AND SPEED ADJUSTEMENT

Menu	Function	Description
F1	MOTOR 1 FORCE	Adjusts the thrust of motor 1. 0001 = minimum force 0010 = maximum force
F2	MOTOR 1 DECELERATION SPEED	Adjusts the thrust of motor 1 during deceleration phase. 0001 = minimum force 0010 = maximum force
F3	MOTOR 1 FORCE AMPEROMETRIC	Adjusts the amperometric threshold of motor 1 during the full force motion. 0001 = minimum threshold 0100 = maximum threshold
F4	MOTOR 1 DECELERATION AMPEROMETRIC	Adjusts the amperometric threshold of motor 1 during the deceleration. 0001 = minimum threshold 0100 = maximum threshold
F5	MOTORE 2 FORCE	Adjusts the thrust of motor 2. 0001 = minimum force 0010 = maximum force
F6	MOTOR 2 DECELERATION SPEED	Adjusts the thrust of motor 2 during deceleration phase. 0001 = minimum force 0010 = maximum force
F7	MOTOR 2 FORCE AMPEROMETRIC	Adjusts the amperometric threshold of motor 2 during the full force motion. 0001 = minimum threshold 0100 = maximum threshold
F8	MOTOR 2 DECELERATION AMPEROMETRIC	Adjusts the amperometric threshold of motor 1 during the deceleration. 0001 = minimum threshold 0100 = maximum threshold

MENU H: TIME ADJUSTMENT AND SETTINGS

All the times can be set in steps of 1 s.

Menu	Function	Description
H1	MOTOR 1 OPENING TIME	Leaf 1 opening time.Tmax 300 sec.
H2	MOTOR 1 CLOSING TIME	Leaf 1 closing time.Tmax 300 sec.
H3	MOTOR 1 DECELERATION TIME	Leaf 1 operating time in deceleration mode. Tmax 100 sec.
H4	MOTOR 2 OPENING TIME	Leaf 2 opening time. Tmax 300 sec.
H5	MOTOR 2 CLOSING TIME	Leaf 2 closing time. Tmax 300 sec.
H6	MOTOR 2 DECELERATION TIME	Leaf 2 operating time in deceleration mode.Tmax 100 sec.

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H7	LEAF 2 PHASE SHIFT TIME IN OPENING	Delay the start in opening of leaf 2 with respect to leaf 1. In the case of double sliding gate, the time H7 will not be considered. Tmax 100 sec.
H8	LEAF 1 PHASE SHIFT TIME IN CLOSING	Delay the start in opening of leaf 1 with respect to leaf 2. In the case of double sliding gate, the time H8 will not be considered. Tmax 100 sec.
H9	AUTOMATIC CLOSING PAUSE TIME	Determines the pause time in opening before automatic closing. Tmax 300 sec.
H10	PEDESTRIAN OPENING TIME	Determines the pedestrian opening time.
H11	AUTOMATIC PEDESTRIAN CLOSING PAUSE TIME	Determines the pause time in pedestrian opening before automatic closing. Tmax 300 sec.
H12	CYCLES NUMBER	Allows the setting of a number of cycles (opening+ closing) before the maintenance request. The value set will always be multiplied for 10. If 0000 is set, the numbering is excluded. When the set number of cycles is reached, the maintenance request is signalled by a slow blink of 60 sec. at the end of the movement. WARNING: every time you enter the menu H12 the cycles numbering is reset and starts again.
H13	INSTALLER CODE	Allows the input of the installer code to customize the settings during the programming phase. The INSTALLER CODE is the only way to enter the programming menu. WARNING: in case of loss of the installer code, it will be possible to delete the old one by pressing simultaneously the keys + and - for 3 seconds when the writing PASS appears. In this way, all the existing setting are erased and the default ones are automatically set. Only the settings of the performed cycles are still stored in memory.
H14	SOFTWARE VERSION	Shows the firmware version installed on the equipment. (R__XX)
H15	NUMBER OF PERFORMED CYCLES	Number of performed cycles. The value displayed on the LCD is increased every 10 movements.

MENU E: EXTERNAL DEVICES ENABLING-DISABLING

KEY +: enters the following menu E1-E2-E3...

KEY -: accede al menu precedente E3-E2-E1...

KEY ESC: leaves the menu

KEY OK: enables (Y) / disables (N) the function

WARNING: The STOP key cannot be excluded in menu E. If it is not used, jumper the clamps 20-29.

Menu	Function	Status	Description
E1	PHOTOCELL 1	Y	Photocell 1 enabled
		N	Photocell 1 disabled
E2	PHOTOCELL 2	Y	Photocell 2 enabled
		N	Photocell 2 disabled
E3	EDGE (SEFETY DEVICE)	Y	Edge enabled
		N	Edge disabled

TIMES MANAGEMENT

T3 ADDITIONAL TIME

Additional time at the end of the working time (with full force or during deceleration phase according to the settings) that allows to continue the movement to close the leaf even if there is wind.

The T3 function is not active with the sliding configuration.

During the T3 time, the anti-crushing is not active, so the T3 time must start as near as possible next to the door stroke.

The limit switch that determines T3 must not be trespassed in order to maintain the control of the limit switches in event of motion inversion.

TIME PROGRAMMING PROCEDURE

CAUTION: start with the gate completely closed.

The times are programmed by means of successive START pulses.

To enter this procedure select the menu C21. (menu C21 blinking)

By pressing OK, the times programming procedure starts (menu C21 Y fixed) then:

1 motor configuration

- START → the leaf starts opening.
- When the leaf arrives at the desired opening position → START → the leaf stops.
- Counting of the pause time.
- When the desired pause time has elapsed → START → the leaf starts closing.
- When the leaf arrives at the closing position → START → the leaf stops.
- At this point the procedure has finished, the blinking menu C21 (without Y) reappears.
- If you want to repeat the operation press OK.
- If you want to finish the times programming operation saving the data, press ESC until the horizontal lines appear on the display.

2 motors configuration

- START → the leaf 1 starts opening.
- After the desired opening phase shift time → START → the leaf 2 starts opening.
- When the leaf 1 arrives at the desired opening position → START → the leaf 1 stops.
- When the leaf 2 arrives at the desired opening position → START → the leaf 2 stops.
- Counting of the pause time.
- When the desired pause time has elapsed → START → the leaf 2 starts closing.
- After the desired closing phase shift time → START → the leaf 1 starts closing.

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- When the leaf 2 arrives at the closing position **START** the leaf 2 stops.
- When the leaf 1 arrives at the closing position **START** the leaf 1 stops.
- At this point the procedure has finished, the blinking menu C21 (without Y) reappears.
- If you want to repeat the operation press **OK**.
- If you want to finish the times learning operation saving the data, press **ESC** until the horizontal lines appear on the display

CAUTION:

During the times programming phase, motion always occurs at a non-decelerated speed.

If decelerations are needed, stop the leaves before stroke, so remember to activate the decelerations option (menu C6) and to set deceleration times (menu H3 and H6).

During the times programming phase, the limit switches and amperometric thresholds are not considered.

The microcontroller does not consider time fractions lower than a second, so the real time is rounded up or down.

The defined times can subsequently be modified manually by accessing the dedicated menus and changing the numerical data.

If the installation is configured as double sliding gate, the motors will move as indicated in the procedure with the phase shift in opening and closing.

During the normal functioning, the phase shift will be reset in any case.

USING THE LIMIT SWITCHES

If the deceleration function is enabled, the limit switches mark the start of the deceleration period.

The gate continues the decelerated motion for the time set in the menus H3 and H6.

If using two limit switches, the first one starts deceleration and the second one stops deceleration but does not lock the motion if T3 and the final stroke are activated.

Make sure that you set the run times longer than the time necessary to reach the limit switch.

If deceleration is not enabled, the limit switches lock the motion if T3 and the final stroke are deactivated.

The additional time T3 and the final closing/opening stroke, if enabled, also work when there are limit switches.

If using only one limit switch with deceleration activated, during the deceleration phase the intervention of the amperometric threshold will determine the end of motion (anti-crushing device not active).

If using two limit switches with deceleration activated, during the deceleration phase the intervention of the amperometric threshold will determine activation of the anti-crushing device (if enabled).

BACKUP BATTERIES USE

If the installation is preset for the use of backup batteries, the amperometric thresholds and the forces must be set checking the correct operation even when the control equipment is supplied only by the batteries.

When the control equipment is supplied only by the batteries, the voltage of the motor power supply is lower, thus the motor absorptions will be lower too.

The control equipment checks the level of the power supply voltage:

- with voltage higher than 24Vdc the control equipment is supplied by main, no restriction;
- with voltage lower than 24Vdc the power supply source is the battery, the motors do not decelerate;

- with voltage around 20-21Vdc, the battery is exhausted; it is possible to open the door but not to close. When the leaf should start the motion, it does not move and the fault "exhausted battery" is signalled by 4 slow blinks of the flashing light;
- with voltage around 16V, the battery is almost exhausted, no movement is allowed. Following a command, the fault "exhausted battery is signalled with 4 s blinks (fast in stand-by, slow in pause). In this case, the battery voltage could be insufficient for both the flashing light and the warning light.

RESET

By pressing simultaneously the + and – keys when the writing "PASS" appears, the default settings are restored (only the number of performed cycles are still stored).

FLASHING LIGHT SIGNALS SUMMARY

Fault	Signal	Effect
Photo 2 intercepted in stand-by after a start command	5 fast flashings	When released it opens
Edge intercepted in stand-by after a start command	3 slow flashings	Blocked closed door
Edge intercepted in pause after a start command or at the beginning closing	3 slow flashings	Blocked open door
Photo 1 test failed at opening.	4 fast flashings	Blocked closed door
Photo 1 test failed at closing.	4 fast flashings	Blocked open door
Amperometric circuit test failed at opening	4 slow flashings	Blocked closed door
Amperometric circuit test failed at closing	4 slow flashings	Blocked open door
Edge N.C. test failed at opening	3 slow flashings	Blocked closed door
Edge N.C. test failed at closing	3 slow flashings	Blocked open door
Edge 8K2 test failed at opening	2 slow flashings	Blocked closed door
Edge 8K2 test failed at closing	2 slow flashings	Blocked open door
Backup batteries at 20-21Vdc in stand-by after a start command	4 seconds slow flashing (*)	The only opening is allowed
Backup batteries at 20-21Vdc in pause after a start command or at beginning closing	4 seconds slow flashing (*)	Blocked open door
Backup batteries at 16Vdc in stand-by after a start command	4 seconds fast flashing (*)	Blocked closed door
Backup batteries in pause after a start command or at beginning closing	4 seconds slow flashing (*)	Blocked open door
Expired mainenance	1 minute slow flashing with closed door	None

(*) When backup batteries voltage is low the switching on of flashing and warning lights could not be visible.

(*) If the flashing light setting is with fixed light (C15 d), the blinking is not present but only the fixed switching on.

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DEFAULT SETTINGS

• Active parameters type A:

A2	→	Y	SWING GATE/OVERHEAD DOOR/BARRIER TYPE
A5	→	Y	2 MOTORS
A8	→	Y	AUTOMATIC-CONDOMINIUM USING

• Active parameters type C:

C1	→	YT	AUTOMATIC CLOSING ENABLED (GENERAL AND PEDESTRIAN)
C2	→	N	FAST CLOSING DISABLED
C3	→	Y	PRE-FLASHING ENABLED
C4	→	N	SAFETY DEVICES TEST DISABLED
C5	→	E1	LIMIT SWITCH ENABLED (SINGLE PAIR)
C6	→	N	DECELERATIONS DISABLED
C7	→	N	WATER HAMMER DISABLED
C8	→	N	FINALE CLOSING STROKE DISABLED
C9	→	NC	SAFETY DEVICE (EDGE) WITH N.C. CONTACT
C10	→	Y1	ANTI-CRUSHING ENABLED
C11	→	N	COURTESY LIGHT WITH 2 MOTORS DISABLED
C13	→	N	T3 DISABLED
C14	→	N	IN "PEDESTRIAN CLOSING, ACTIVATES COMPLETE OPENING
C15	→	Y	INTERMITTENT FLASHING LIGHT
C16	→	N	EXTERNAL CLOCK CONTACT DISABLED
C17	→	N	EXTERNAL CLOCK CONTACT DISABLED
C18	→	N	EXTERNAL CLOCK CONTACT DISABLED
C20	→	N	oPHOTO 1 TEST DISABLED

• Parameters type F

F1	→	10	MOTOR 1 FORCE
F2	→	05	MOTOR 1 DECELERATION
F3	→	80	AMPEROMETRIC MOTOR 1 FORCE
F4	→	50	AMPEROMETRIC MOTOR 1 DECELERATION
F5	→	10	MOTOR 2 FORCE
F6	→	05	MOTOR 2 DECELERATION
F7	→	80	AMPEROMETRIC MOTOR 2 FORCE
F8	→	50	AMPEROMETRIC MOTOR 2 FORCE

• Parameters type H:

H1	→	25	MOTOR 1 OPENING TIME
H2	→	25	MOTOR 1 CLOSING TIME
H3	→	20	MOTOR 1 DECELERATION TIME
H4	→	25	MOTOR 2 OPENING TIME

H5	→	25	MOTOR 2 CLOSING TIME
H6	→	20	MOTOR 2 DECELERATION TIME
H7	→	5	LEAF 2 PHASE SHIFT TIME IN OPENING
H8	→	5	LEAF 1 PHASE SHIFT TIME IN CLOSING
H9	→	5	PAUSE TIME
H10	→	5	PEDESTRIAN OPENING TIME
H11	→	5	PEDESTRIAN PAUSE TIME
H12	→	0000	NUMBER OF CYCLES
H13	→	0000	INSTALLER CODE
H14	→	xxxx	SOFTWARE VERSION (format: R__xx)
H15	→	0000	NUMBER OF CYCLES DONE

• Parameters type E:

E1	→	Y	PHOTOCELL 1 ENABLED
E2	→	Y	PHOTOCELL 2 ENABLED
E3	→	Y	SAFETY DEVICE (EDGE) ENABLED

FINAL CHECKS AND TESTING

Before powering the control unit , run the following tests:

- 1- Check the electrical connections: improper connection may be harmful to both the control unit and the operator.
- 2- Check proper position of the limit switches.
- 3- Preset the mechanical stops in opening and closing.
- 4- Power the equipment.
- 5- Check that the red LEDs of the normally closed contacts are on and the green LEDs of the normally open contacts are off.
- 6- Check that the writing SAF does not appear on the LCD (intercepted or faulty edge).
- 7- Check that the relative LEDs turn off when limit switches work.
- 8- Check that the relative LED turns off when the photocells ray is intercepted.
- 9- Check that the relative LED turns off when the safety devices work.
- 10- Check that the motors are locked and ready to work with the "GATE COMPLETELY CLOSED".
- 11- Remove possible obstacles in the operating area of the gate, then give the command START. At the first command, the equipment starts opening, then check that the motion direction is correct.
If not invert the wires in the terminals M1 and/or M2.
- 12- The gate will stop upon reaching the first opening limit switch. It is necessary a complete movement to activate the regular working of the decelerations.

BA24 DISPOSAL

Gi.Bi.Di advises recycling the plastic components and to dispose of them at special authorised centres for electronic components thus protecting the environment from polluting substances.



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SIMPLIFIED PROGRAMMING

- 1- Connect all the connections (wire motors using a 1.5 mm² wire)
- 2- Enter the installation code, and then set the type of function desired from menu A2/A3.
- 3- Set the number of motors used. Menu A4/A5.
- 4- Set the operation mode. Menu A6/A7/A8/A9.
- 5- Go to menu C21, and select «Y» to activate automatic time programming, then press «START» (+ key) (see page 20 "Time learning procedure")
- 6- Go to menu C5 to program slowdowns.
- 7- Go to menu C6 to choose the number of limit switches. We recommend programming a single limit switch when stopping points are present.
- 8- Use the dedicated menus to adjust each time parameter.
- 9- Press «ESC» to exit programming.
- 10- Check whether the force used by operators on the gate is either sufficient or excessive. Go to menu F to adjust, if necessary.

CE Declaration of conformity

The manufacturer:

GI.BI.DI. S.r.l.

Via Abetone Brennero, 177/B,
46025 Poggio Rusco (MN) ITALY

Declares that the products:

ELECTRONIC CONTROL UNIT BA24

are in conformity with the following CEE Directives:

- **LVD Directive 2006/95/CE and subsequent amendments;**
- **EMC Directive 2004/108/CE and subsequent amendments;**

and that the following harmonised standards have been applied:

- **EN60335-1, EN60335-2-103, EN50366**
- **EN61000-6-2, EN61000-6-3**

Date 30/07/08

Managing Director
Oliviero Arosio



NOTE

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