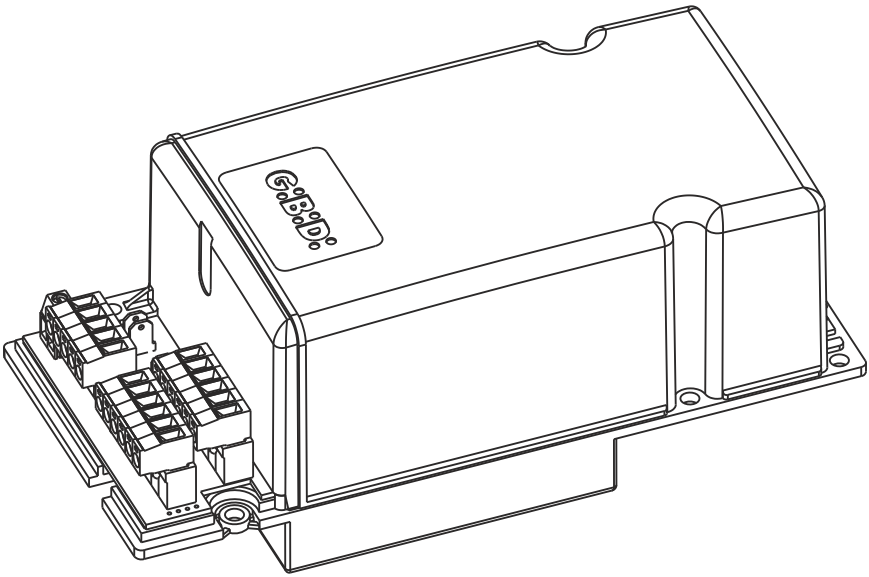


:SC

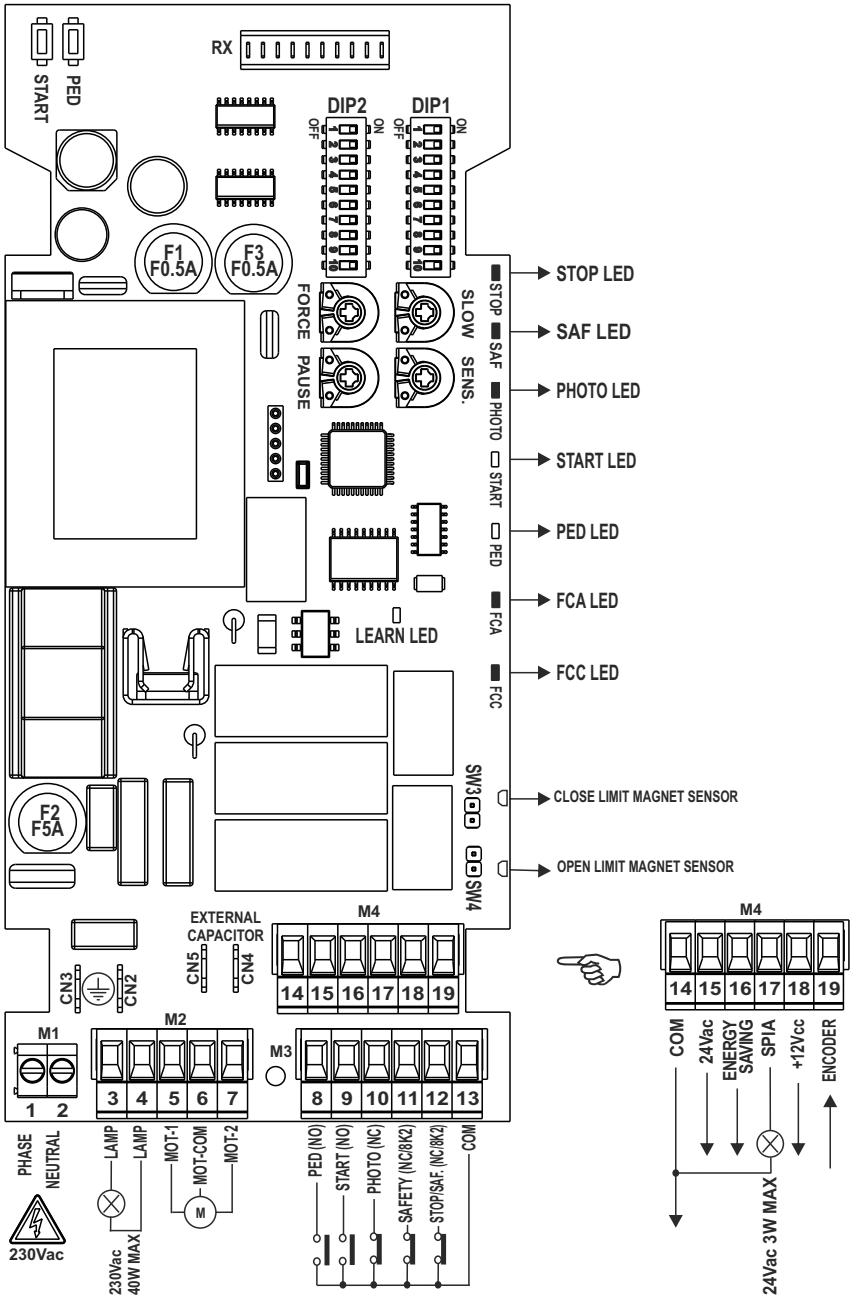
SC230E (AS05880-AS05885)

Electronic control unit
ELECTRICAL DIAGRAM AND CONNECTIONS

UK

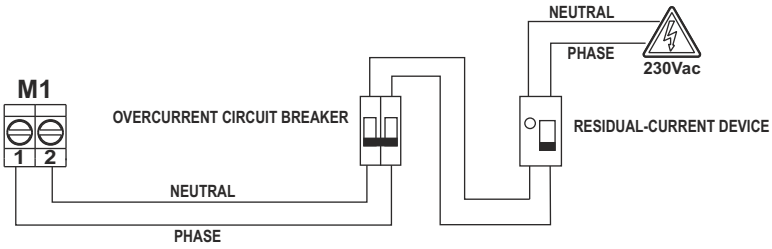
ELECTRICAL CONNECTIONS

1



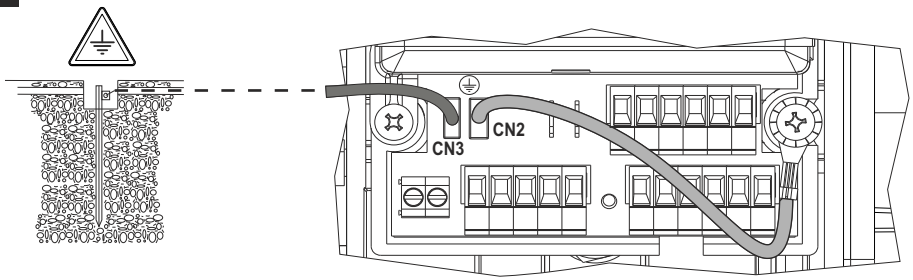
POWER SUPPLY CONNECTION

2



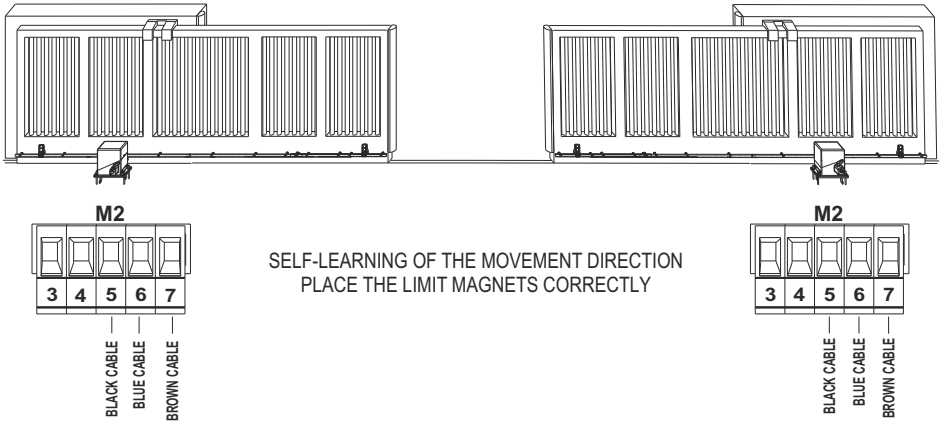
EARTH CONNECTION

3



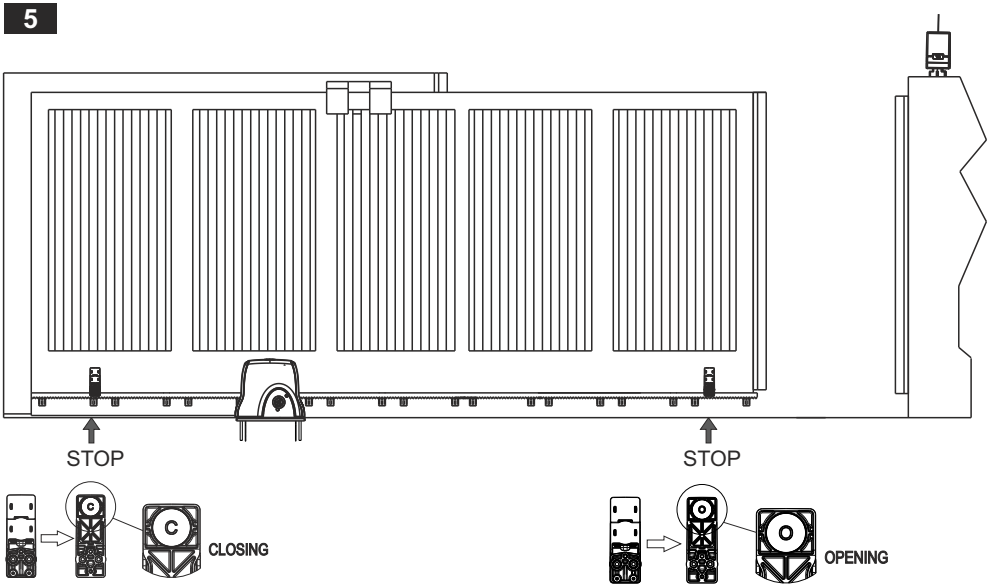
MOTOR CONNECTION

4



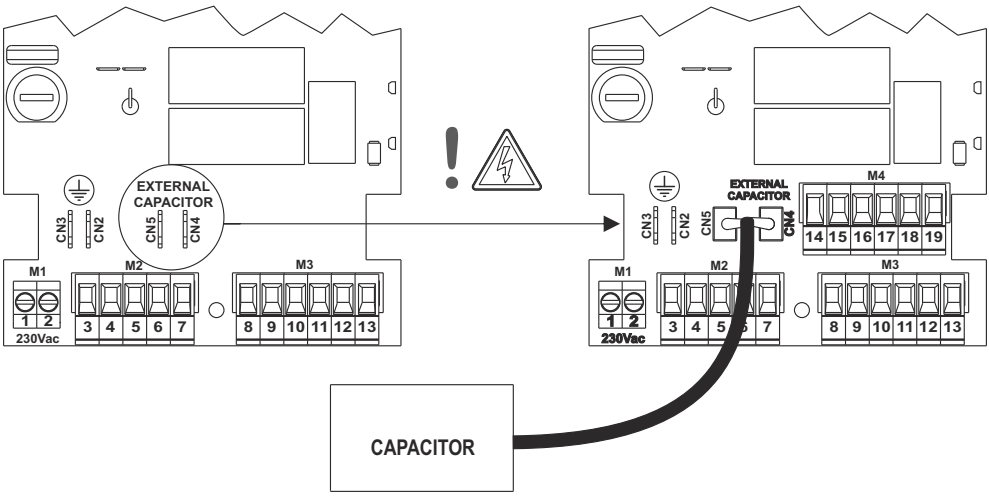
LIMIT MAGNETS INSTALLATION

5



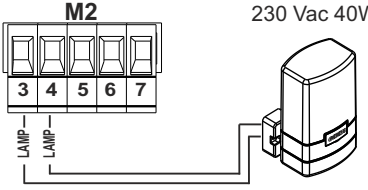
CAPACITOR CONNECTION

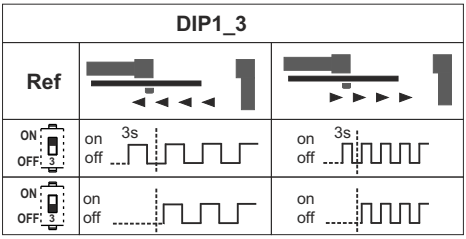
6



FLASHING LIGHT CONNECTION

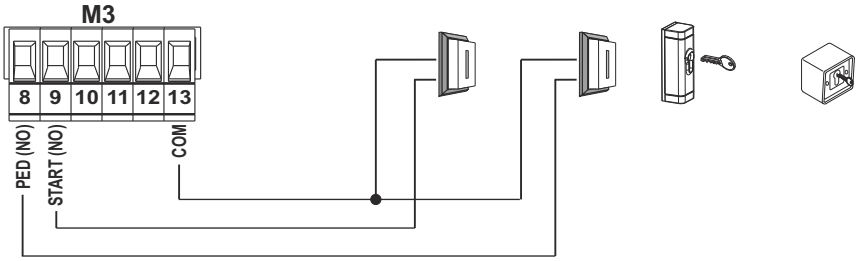
8





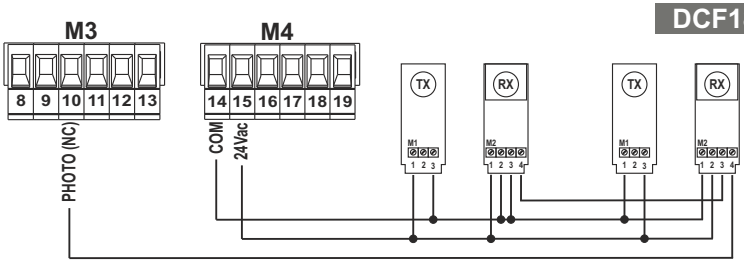
CONTROL DEVICES CONNECTION

9



PHOTOCELLS CONNECTION

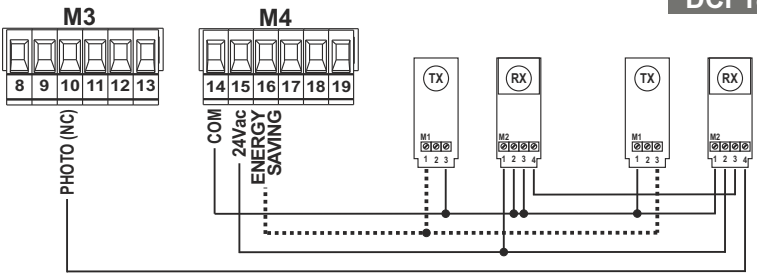
10 **DCF180**



REFER TO THE PHOTOCELLS MANUAL FOR DETAILED CONNECTION DIAGRAMS

PHOTOCELLS CONNECTION WITH TEST

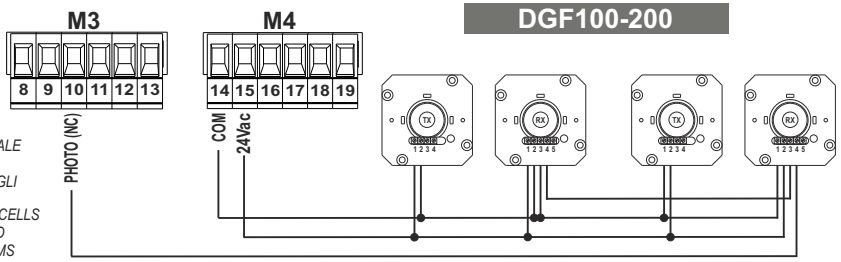
11 **DCF180**



REFER TO THE PHOTOCELLS MANUAL FOR DETAILED CONNECTION DIAGRAMS

PHOTOCELLS CONNECTION

12

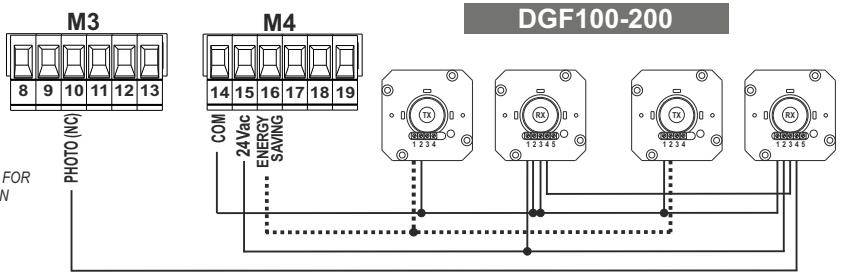


CONSULTARE IL MANUALE DELLE FOTOCELLULE PER MAGGIORI DETTAGLI

REFER TO THE PHOTOCELLS MANUAL FOR DETAILED CONNECTION DIAGRAMS

PHOTOCELLS CONNECTION WITH TEST

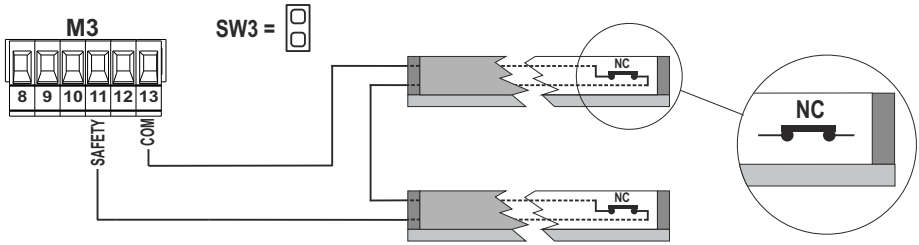
13



REFER TO THE PHOTOCELLS MANUAL FOR DETAILED CONNECTION DIAGRAMS

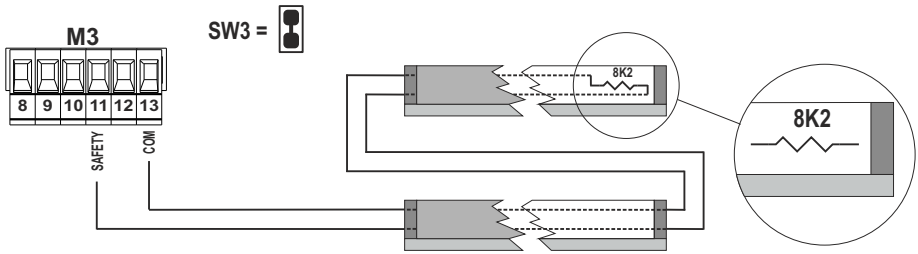
NC "SAFETY DEVICE" CONNECTION

14



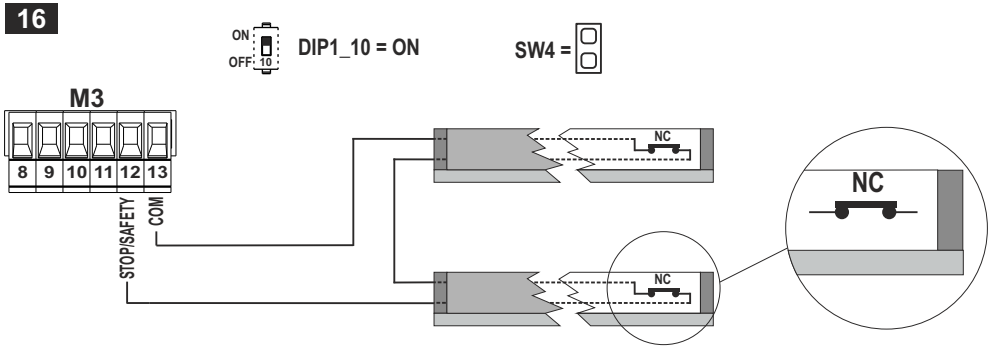
8K2 "SAFETY DEVICE" CONNECTION

15



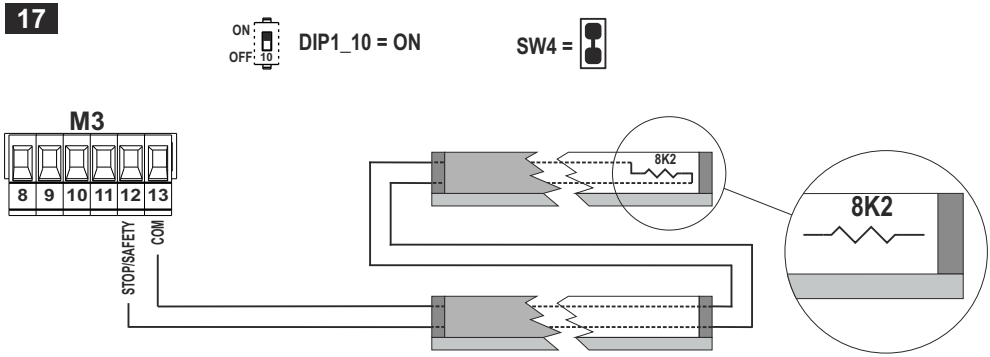
CONNECTION OF NC "SAFETY DEVICE" ACTIVE ONLY DURING OPEN

16



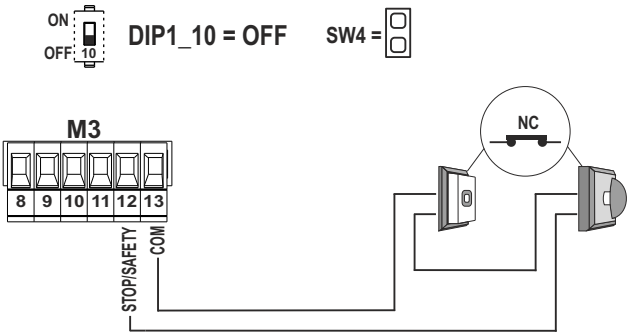
CONNECTION OF 8K2 "SAFETY DEVICE" ACTIVE ONLY DURING OPEN

17



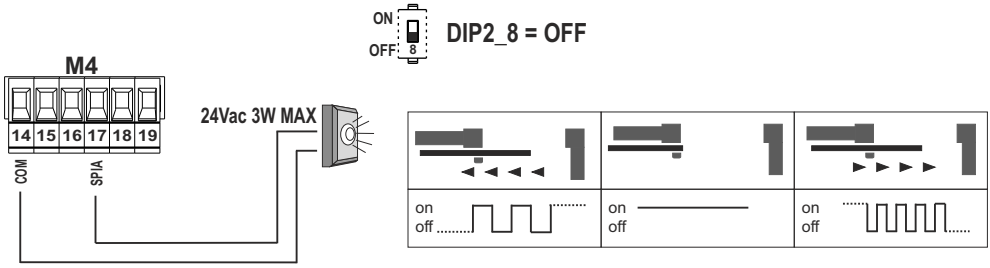
STOP CONNECTION

18



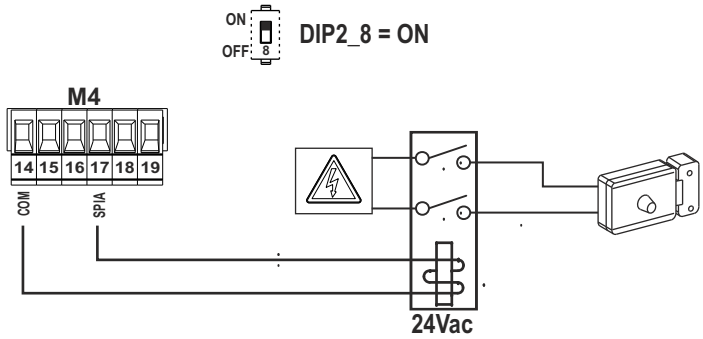
WARNING LIGHT CONNECTION

19



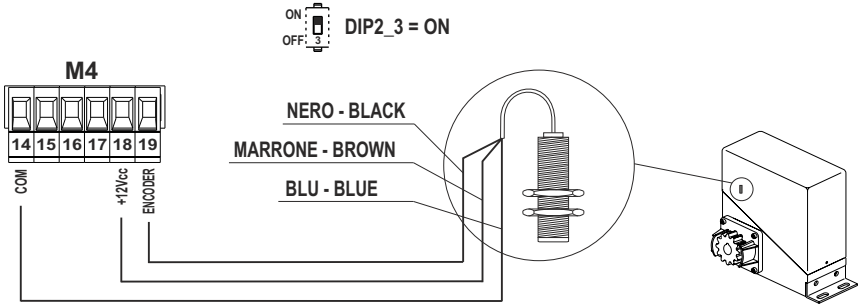
ELECTRICAL LOCK CONNECTION

20



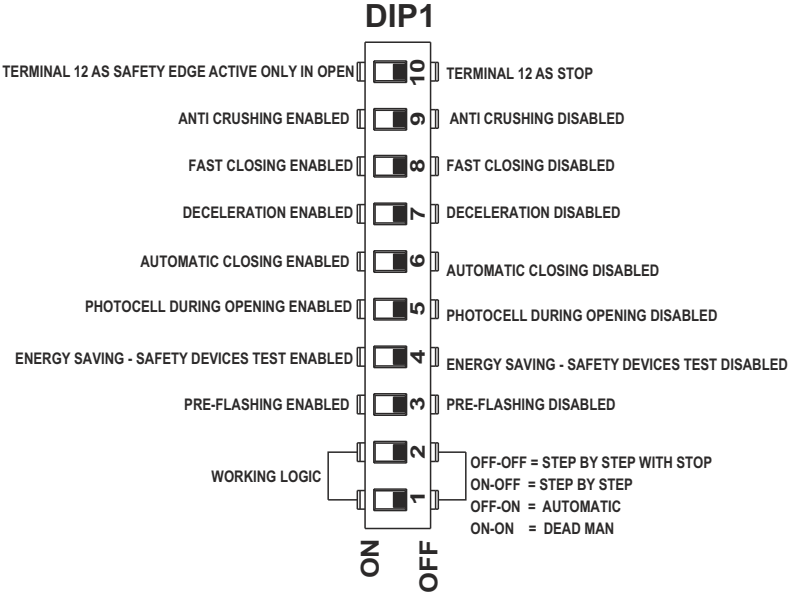
ENCODER CONNECTION

21



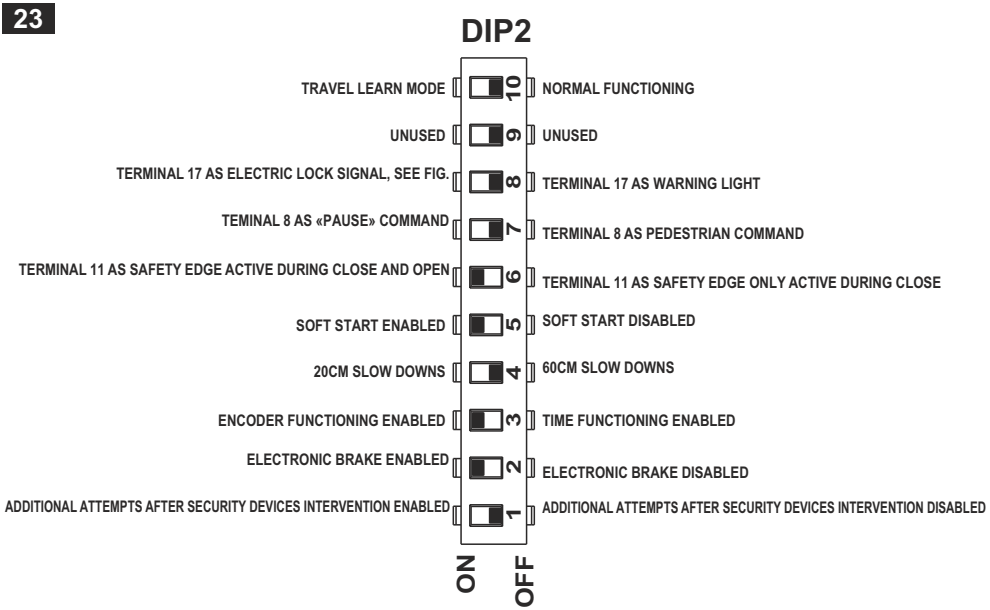
DIP1 DEFAULT SETTINGS

22



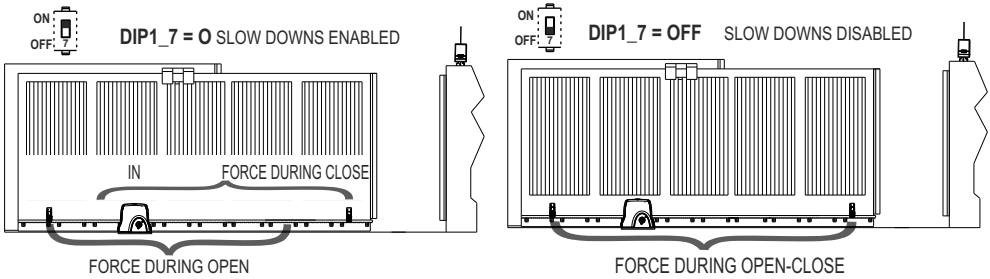
DIP2 DEFAULT SETTINGS

23



TRIMMER “FORCE”

24

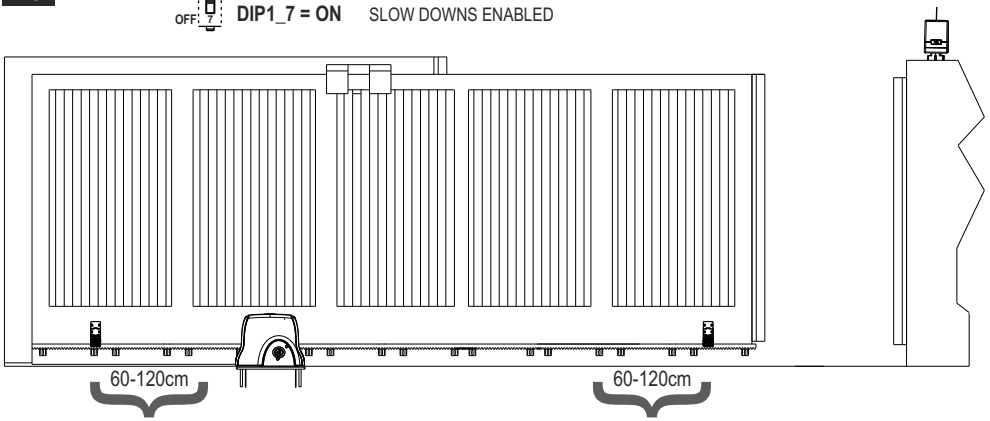


MOVEMENT SPEED : 100% - THRUST FORCE: 10%-100%

TRIMMER “SLOW”

25

DIP1_7 = ON SLOW DOWNS ENABLED



MOVEMENT SPEED : 50% - THRUST FORCE: 25%

MOVEMENT SPEED : 100% - THRUST FORCE: 10%-100%

TRIMMER “SENS”

26

INTERVENTION SENSITIVITY OF ANTICRUSHING SENSOR

HIGH SENSITIVITY

MEDIUM SENSITIVITY

LOW SENSITIVITY

TRIMMER “PAUSE”

27

PAUSE 2 SECONDS

PAUSE 220 SECONDS

UK

1 - TECHNICAL CHARACTERISTICS

Control unit	SC230E / AS05880-AS05885
Type	**Electronic control unit for the automation of a sliding gate with 230Vac motor**
Power supply	230 Vac single-phase 50/60 Hz
No. of motors	1
Motor power supply	230 Vac
Flashing light	230 Vac 40W max
Warning light	24 Vac 3W max
Accessories power supply	24 Vac 8W max
Radio receiver	Plug-in
Operating temperature	-20°C +60°C
Max. length of the leaf	25m

2 - TECHNICAL CHARACTERISTICS / FUNCTIONS

- Red warning led of N.C. contacts (photo, safety, closing limit switch,opening limit switch, stop/safety).
- Green warning led of N.O. contacts (start and ped).
- Blue led for signalling.
- START and PED buttons on board.
- Time operation with limit switch or encoder with limit switch.
- Learning of the complete stroke by proper procedure.
- Adjustable pedestrian opening by proper procedure.
- Adjustable and excludable deceleration in opening and closing.
- Soft start function can be activated.
- Motion stop and inversion for 1 s after the intervention of safety devices. At next Start pulse the motion restarts in the 'obstacle freeing direction.
- Anti-crushing function by encoder, both in standard operation and in slowed mode.
- Safety test made before the movement in opening and closing.
- ENERGY SAVING terminal. The devices powered by this terminal will not be powered only during the operation cycle. The connection to this power supply will allow the devices TEST before the motion.
- 1 input for safety device can be selected NC or 8K2.
- 1 input can be selected as safety device or STOP, NC or 8K2.

Thank you for choosing GIBIDI.

⚠ **READ CAREFULLY THIS MANUAL BEFORE PROCEEDING WITH THE INSTALLATION.**

WARNING: This product has been tested by GI.BI.DI. checking the perfect correspondence of its 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.

DISPOSAL: GI.BI.DI. advises recycling the plastic components and disposing of them at special authorised centres for electronic components, protecting the environment form polluting substances.

UK

3 - INSTALLATION WARNINGS

- Before proceeding with the installation, it is necessary to fit a magnetohtermal and differential switch of 10A max. upstream of the system. The switch must guarantee an omnipolar separation of the contacts with an opening distance of at least 3 mm.
- To prevent possible interferences, differentiate and always keep the power cables (min. cross-section 1,5mm²) separate from the signal cables (min. cross-section 0,5mm²).
- 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.
- An incorrect installation or an improper use of the product may compromise the safety of the system.
- Keep all the materials contained in the packaging away from children, since they pose a potential risk.
- The manufacturer declines any responsibility for improper functioning of the automated device if the original components and accessories suitable for the specific application are not used.
- After the installation, always carefully check the proper functioning of the system and the devices used.
- This instruction manual addresses persons 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.
- The use of the products 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 must not play or stand around near the gate.
- Appropriately protect the danger points (for example using a sensitive frame).

4 - WARNINGS FOR THE USER

- In the event of an operating fault or failure, cut the power upstream of the control unit and call the technical service.
- Periodically check the functioning of the safety devices.
- Any repairs must be carried out by specialised personnel using original and certified materials.
- The product 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 instructed.
- Do not touch the card for adjustments and/or maintenance.

CAUTION: IMPORTANT SAFETY INSTRUCTIONS.
It is important to follow these instructions for your safety.
Keep this instruction manual.

UK

5 - ELECTRICAL CONNECTIONS: TERMINAL BOARDS

Terminal	Position	Signal	Description
M1	1	PHASE	230 Vac power supply
	2	NEUTR	230 Vac power supply
M2	3	LAMP	Flashing light output 230Vac 40W. Slow flashing in opening, turned off in pause, fast flashing in closing.
	4		
	5	MOT1	Motor phase 1 connection (black cable)
	6	MOT-COM	Motor common (blue cable)
	7	MOT2	Motor phase 2 connection (brown cable)
M3	8	PED	PED (N.O.) input. See DIP2_7 .
	9	START	START (N.O.) input. See DIP1_1 and DIP1_2.
	10	PHOTO	PHOTOCELL (N.C.) input, see DIP1_5 operation. If not used, make a jumper with terminal no. 13
	11	SAFETY	SAFETY DEVICES input . If not used, make a jumper with terminal no. 13 and open jumper SW3. See also jumper SW3 and DIP2_6 operation.
	12	SAFETY / STOP	SAFETY DEVICES / STOP input, selectable by DIP1_10. See description DIP1_10. If not used, make a jumper with terminal no. 13 and open jumper SW4.
	13	COM	INPUTS-OUTPUTS COMMON
M4	14	COM	INPUTS-OUTPUTS COMMON, ENCODER COMMON.
	15	24Vac	24Vac power supply for external accessories (photocells, radio, etc) 8W Max
	16	ENERGY SAVING	24Vac power supply for external safety devices tested, 8W Max. 24Vac power supply for external devices tested to ENERGY SAVING. See DIP1_4 operation.
	17	SPIA	WARNING LIGHT 24Vac 3W max. output Slow flashing in opening, turned on fixed in pause, fast flashing in closing.
	18	+12Vdc	Encoder power supply (brown cable)
	19	IMP	Encoder input (black cable)

6 - ELECTRICAL CONNECTIONS: FASTON

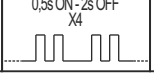
Faston	Description
CN2 CN3	Ground connection
CN4 CN5	Motor capacitor connection

UK

7 - PROTECTION FUSES

Position	Value	Type	Description
F1	500 mA	FAST	Protects the electronic card
F2	5 A	FAST	Protects the control unit at 230 Vac power supply input
F3	500 mA	FAST	Protects the ACCESSORIES and SAFETY DEVICES power supply outputs

8 - SIGNALLING LED

Signal	Colour	Description	
STOP	RED	Always on. It turns off after the intervention of STOP/EDGE input.	
SAF	RED	Always on. It turns off after the intervention of EDGE input.	
PHOTO	RED	Always on. It turns off when the photocell is intercepted, interrumping its ray.	
START	GREEN	It turns on when START command is activated and off when you release it.	
PED	GREEN	It turns on when PEDESTRIAN command is activated and off when you release it.	
FCA	RED	Always on. It turns off when the OPENING LIMIT SWITCH is reached.	
FCC	RED	Always on. It turns off when the CLOSING LIMIT SWITCH is reached.	
LEARN	BLUE	0,5s ON 0,5 OFF CONTINUOUS 	Stroke learning necessary.
		ALWAYS ON 	The control unit is in pre-learning phase after DIP2_10 activation.
		3s ON-1s OFF CONTINUOUS 	Learning correctly made. Position again in OFF the DIP2_10.
		0,3s ON - 0,3s OFF 0,3s ON - 0,3s OFF 0,3s ON - 1s OFF CONTINUOUS 	Failed learning. There has been an intervention of photo-stop-edge-start-ped-limit switch during learning manoeuvres.
		0,5s ON - 0,5s OFF 0,5s ON - 2s OFF X4 	ENCODER error (absence or anti-crushing intervention).

UK

9 - JUMPER SW3-SW4

The DEFAULT settings are coloured in grey

JUMPER	Function	Status	Descrizione
SW3	TERMINAL 11 OPERATION		N.C. devices are connected to terminal 11 (SAFETY)
			Resistive devices 8,2 KOhm (8K2) are connected to terminal 11 (SAFETY)
SW4	TERMINAL 12 OPERATION		N.C. devices are connected to terminal 12 (STOP/SAFETY).
			Resistive devices 8,2 KOhm (8K2) are connected to terminal 12 (STOP/SAFETY).

10 - DIP SWITCHES DIP1

The settings are stored during the rest phase (gate closed).
The DEFAULT settings are coloured in grey

DIP	Function	Status	Description
DIP 1 DIP 2	STEP - BY - STEP WITH STOP	OFF OFF	**Operation in reply to a START command:** • Gate closed ⟶ OPENS • During opening ⟶ STOPS • Gate open ⟶ CLOSES • During closing ⟶ STOPS • After a STOP ⟶ inverts the motion
	STEP - BY - STEP	ON OFF	**Operation in reply to a START command:** • Gate closed ⟶ OPENS • During opening ⟶ CLOSES • Gate open ⟶ CLOSES • During closing ⟶ OPENS
	AUTOMATIC	OFF ON	**Operation in reply to a START command:** • Gate closed ⟶ OPENS • During opening ⟶ IRRELEVANT • Gate open ⟶ Recharges the automatic closing time if the automatic reclosing is enabled, otherwise closes. • During closing ⟶ OPENS COMMAND SUPPORTED: the gate OPENS and stays opened as long as the contact stays closed.
	DEAD MAN	ON ON	If Start button is held down: OPENS If Pedestrian button is held down: CLOSES SAFETY, PHOTO inputs, deceleration and anti-crushing will not be active. STOP (DIP1_10=OFF) will be enabled. Not manageable with radio control.

UK

10 - DIP SWITCHES DIP1

DIP	Function	Status	Description
DIP 3	PRE-FLASHING	ON	Enables the pre-flashing of 3 s before the activation of the motor in opening and closing.
		OFF	Disables the pre-flashing.
DIP 4	ENERGY SAVING SAFETY DEVICES TEST	ON	Enables the TEST of the devices connected to the terminals (10)-(11)-(12): if the devices are working properly, the cycle can start, otherwise some prolonged flashing will indicate the anomaly. • Terminal (10 - "PHOTO"): power the photocells' transmitters by the terminal (16) and the receivers by the terminal (15 - " 24Vac"). At the beginning of the manoeuvre, the current will be cut to the transmitters for 1 s and then restored to check its right operation. • Terminal (11 - "SAFETY") and (12 if DIP1_10=ON) : the resistive value 8K2Ω is checked. Enables ENERGY SAVING: There will be some tension on terminal (16) only during the manoeuvre. At rest the led will be off.
		OFF	Disables the safety devices test. Disables ENERGY SAVING
DIP 5	PHOTOCELL IN OPENING	ON	When the photocell is intercepted, in opening and closing, the gate motion is locked until the photocell is freed. Subsequently there is always an opening phase.
		OFF	Photocell enabled only during closing, when it is intercepted the gate opens.
DIP 6	AUTOMATIC RECLOSING	ON	Enables the automatic closing after the pause time adjustable by the trimmer TR1 PAUSE from 2 to 220 s.
		OFF	Disables the automatic closing.
DIP 7	DECELERATION	ON	Enables the deceleration both in opening and closing. The deceleration speed is adjusted by trimmer TR3 SLOW. The deceleration distance is adjustable with DIP2_4.
		OFF	Disables the deceleration function.
DIP 8	FAST RECLOSING	ON	Reduces the pause time to 2 s after the intervention of the photocells.
		OFF	Disables the fast closing function.
DIP 9	ANTI CRUSHING	ON	Enables the operation of motor rpm sensor. After a reduction of the number of motor revolutions (e.g. obstacle), the sensor intervenes locking the motion and inverting the direction for 1 s in order to free the obstacle. At next Start pulse, the motion restarts in the obstacle freeing direction. IT CAN BE ENABLED ONLY IF THERE IS THE ENCODER.
		OFF	Disables the anti-crushing.

UK

10 - DIP SWITCHES DIP1

DIP	Function	Status	Description
DIP 10	TERMINAL 12 FUNCTION	ON	Terminal 12 (SAFETY-STOP) works as SAFETY EDGE ENABLED ONLY DURING OPENING. After the intervention of the safety device, the control unit stops the motion, inverts it for 1 s and waits for a command.
		OFF	Terminal 12 works as STOP. The activation of STOP device causes an immediate STOP of the automation.

11 - DIP SWITCHES DIP2

The settings are stored during rest phase (gate closed).

The DEFAULT settings are coloured in grey

DIP	Function	Status	Description
DIP 1	ATTEMPTS AFTER SAFETY DEVICES INTERVENTION	ON	Enables the function attempts after the intervention of the safety devices. After the intervention of the safety devices SAFETY or SAFETY-STOP (DIP 1_10 = ON) or of the MOTOR RPM SENSOR and, after 10 s, the automation will try, for 3 times max, to restart the motion in the direction that has been interrupted. After another intervention of the safety device, the automation stops waiting for a command. ⚠ **WARNING!** A programming of the function different from the configuration pre-set by the manufacturer, although it allows, if correctly done, the reduction of the cases of stop of the system in intermediate position (as a simply example, for the presence of frictions, wind and/or obstacles on the way of the movable element), causes, in any case, a reduction of the safety level of the same system and a consequent danger for people safety.
		OFF	Disables the function.
DIP 2	ELECTRONIC BRAKE	ON	Electronic brake enabled. Activate this function when the gate shows excessive inertia or its movement exceeds the limit switches.
		OFF	Electronic brake disabled.
DIP 3	ENCODER OR TIMED OPERATION	ON	Encoder operation, the encoder must be on the present motor and connected to the control unit.
		OFF	Timed operation.

UK

11 - DIP SWITCHES DIP2

DIP	Function	Status	Description
DIP 4	DECELERATION DISTANCE	ON	The decelerated manoeuvre starts 120cm before the total opening/closing.
		OFF	The decelerated manoeuvre starts 60cm before the total opening/closing.
DIP 5	SOFT START	ON	Soft start ENABLED.
		OFF	Soft start DISABLED.
DIP 6	TERMINAL 11 (SAFETY) FUNCTION	ON	Terminal 11 (SAFETY) works as SAFETY EDGE ACTIVE IN OPENING AND CLOSING. After the intervention of the safety device, the control unit locks the motion, inverts it for 1 s and waits for a command.
		OFF	Terminal 11 (SAFETY) works as SAFETY EDGE ACTIVE ONLY IN CLOSING. After the intervention of the safety device, the control unit locks the motion, inverts it for 1 s and waits for a command.
DIP 7	TERMINAL 8 (PED) FUNCTION	ON	Terminal 8 (PED) works as PAUSE command (N.O.) **Operation in reply to a PAUSE command:** Gate open: IRRELEVANT During opening: Stops the motion and starts automatic closing timer (if the automaitic closing is disabled IRRELEVANT). Gate open: IRRELEVANT During closing: IRRELEVANT The PAUSE acts as the PAUSE from total opening.
		OFF	Terminal 8 (PED) works as PEDESTRIAN command (N.O.) The pedestrian manoeuvre is made after the closure of this contact by relays 2 of plug-in 2CH receivers. **Operation in reply to the PEDESTRIAN command:** Gate closed: OPENS for the time stored During opening: IRRELEVANT Gate open: Recharge the time of the automatic closing if enabled, otherwise it CLOSES. During closing: partially OPENS Interaction with photocell during closing :partially OPENS. Interaction PED->START: OPENS all/CLOSES/STOP following the logic set for START. interaction START->PED: during openingirrelevant, during closing opens again, in pause closes again if automatic closing is disabled. COMMAND SUPPORTED: the gate partially OPENS and stays open as long as the contact stays closed.

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11 - DIP SWITCHES DIP2

DIP	Function	Status	Description
DIP 8	TERMINAL 17 (WARNING LIGHT) FUNCTION	ON	Terminal 17 (WARNING LIGHT) works as Output ELECTRIC LOCK 24Vac 3W max. It is not possible to power the electric lock directly from terminal 17, it is necessary to use a relay and an external transformer.
		OFF	Terminal 17 (WARNING LIGHT) works as Output WARNING LIGHT 24Vac 3W max. Slow blinking in opening, fixed on in pause, fast blinking in closing.
DIP 9	NOT USED	ON	NOT USED
		OFF	
DIP 10	STROKE LEARNING	ON	STROKE LEARNING ENABLED.
		OFF	STANDARD OPERATION.

12 - TRAVEL LEARNING

Preliminary warnings:

- During the stroke learning movement, any interaction with commands or safety devices causes the end of the procedure.
- The storage cycle of PEDESTRIAN time not succesfully completed DISABLES the PEDESTRIAN opening.
- The pedestrian learning is not possible without having made before the total stroke learning.
- Chek the correct positioning of magnetical limit switches, with DIP1_4 in OFF, move the gate manually and check the correct switch-off of FCC-FCA led.
- Check DIP2_3, OFF (timed operation) or ON (encoder operation).

Procedure for total travel learning:

- Unlock the operator and position the gate between the two limit switches FCC-FCA, LED FCC-FCA on.
- Position DIP2_10 in OFF.
- Position DIP2_10 in ON .
- LEARN led turns on fixed.
- Push START to start the learning cycle.
- The gate will close up to FCC limit switch.
- The gate will open up to FCA limit switch.
- The gate will close up to FCC limit switch.
- LEARN led will blink to indicate the correct storage.
- Position DIP2_10 in OFF.

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12 - TRAVEL LEARNING

Procedure for pedestrian travel learning:

- Unlock the operator and position the gate between the two limit switches FCC-FCA, LED FCC-FCA on.
- Position DIP2_10 in OFF.
- Position DIP2_10 in ON .
- LEARN led turns on fixed.
- Push PED to start the learning cycle.
- The gate will close up to FCC limit switch..
- The gate will open as long as you push again the button PED. If you do not push the button PED, the learning will finish once reached the 70% of the total opening.
- The gate will close up to FCC limit switch.
- LEARN led will blink to indicate the correct storage.
- Position DIP2_10 in OFF.

13 - TRIMMER ADJUSTMENT

Trimmer	Default	Description
PAUSE		Adjusts the PAUSE TIME from 2 to 220 s. The value is increased by turning the trimmer clockwise.
FORCE		Adjusts the motor FORCE/SPEED level during the not decelrated movement period. **WARNING**: If the trimmer adjustment is less than 20% and, according to the characteristics of the system, it is possible that the gate stops before finishing its stroke. Adjust appropriately the trimmer avoiding too low adjustments.
SLOW		Adjusts the motor FORCE/SPEED level during the not decelerated movement. Adjustments different from the minimum cause only a reduction of the thrust force, but not a visible deceleration. **WARNING**: If the trimmer adjustment is less than 20% and, according to the characteristics of the system, it is possible that the gate stops before finishing its stroke. Adjust appropriately the trimmer avoiding too low adjustments.
SENS		Adjusts the intervention sensitivity of the motor rpm sensor. Turning the trimmer clockwise, the sensitivity decreases.

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14 - FINAL CHECKS

- Check the electrical connections: an improper connection may be harmful to both the control unit and the operator.
- Check the correct position of the limit switches.
- Always preset the mechanical stops in opening and closing.
- Check the correct operation of photocells and safety devices.
- Check that the motors are blocked and ready to work in GATE HALFWAY position.
- Remove any possible obstacle in the operating area of the gate.
- Check that the direction of gate motion is correct:
  - take off the power supply from the control unit.
  - power the control unit.
  - give a START command.
  - check that the gate is opening, otherwise check the correct position of the limit switches and repeat the stroke learning procedure.
- Check the correct operation of the automation.

15 - FLASHLIGHT SIGNALLING SUMMARY

Device	Signalling	Effect
Photo intercepted at rest in presence of START command (DIP1_5 = ON)	5 fast flashing	When released, it opens
Photo test failed	4 slow flashing	Door blocked
Edge intercepted before the motion	3 slow flashing	Door blocked
Edge 8K2 test failed (terminal 11)	2 slow flashing	Door blocked
Edge 8K2 test failed (terminal 12)	1 slow flashing	Door blocked
Encoder error	4 series of 2 fast flashing	Door blocked

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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 SC230E

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,**
- **EN61000-6-2, EN61000-6-3**

Date 21/01/2019

The legal Representative
Michele Prandi

Cod. AIC0041 - 01/2019 - Rev. 00

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