INDEX

1 - GENERAL WARNINGS: SAFETY - INSTALLATION 32
1.1 - INSTALLATION WARNINGS 33
1.2 - PRELIMINARY CHECKS AND IDENTIFICATION OF THE TYPE TO BE USED 33
1.3 - EU DECLARATION OF CONFORMITY 34

2 - TECHNICAL DATA 35

3 - INSTALLATION OF THE MOTOR 36
3.1 - INSTALLATION OF THE MOTOR 36
3.2 - MOUNTING THE RACK 37
3.3 - FIXING OF THE MOTOR 37
3.4 - INSTALLING THE MAGNETIC LIMIT SWITCHES 38
3.5 - MOTOR OVERRIDING SYSTEM 39
3.6 - INSTALLATION LAYOUT 39

4 - CONTROL UNIT 40
4.1 - POWER SUPPLY 40
4.2 - FLASHING LIGHT 40
4.3 - COURTESY LIGHTS 40
4.4 - ACTIVATION INPUTS 40
4.5 - STOP 40
4.6 - PHOTOCELLS 41
4.7 - SAFETY RIBBONS 41
4.8 - EXTERNAL AERIAL 41
4.9 - ELECTRICAL CONNECTION 42
4.10 - PLUG IN RECEIVER 43
4.11 - ADI INTERFACE 43

5 - CONTROL PANEL 44
5.1 - DISPLAY 44
5.2 - USE OF THE KEYS FOR PROGRAMMING 45

6 - ACCESSING THE CONTROL UNIT SETTINGS 45

7 - QUICK CONFIGURATION 46

8 - LOADING THE DEFAULT PARAMETERS 46

9 - SELF-LEARNING OF WORKING TIMES 47

10 - INVERTER BOARD FUNCTIONAL TEST 48

11 - READING THE COUNTER OF THE CYCLES AND EVENTS MEMORY 48

12 - PROGRAMMING THE CONTROL UNIT 50

13 - EMERGENCY DEAD MAN OPERATION 50

14 - OPERATION DEFECTS 56

15 - TESTING AND START-UP 58

16 - MAINTENANCE 58

17 - DISPOSAL OF THE PRODUCT 58

1 - GENERAL WARNINGS: SAFETY - INSTALLATION

⚠ **These warnings are copies straight from the Regulations and as far as possible applicable to the product in question.**

⚠ **ATTENTION: Important safety instructions. Follow all instructions as improper installation may cause serious damage.**

⚠ **ATTENTION: Important safety instructions. It is important for you to comply with these instructions for your own and other people's safety. Keep these instructions**

- Before commencing the installation, check the "Technical characteristics" (in this manual), in particular whether this product is suitable for automating your guided part. If it is not suitable, DO NOT continue with the installation
- The product cannot be used before it has been commissioned as specified in the chapter on "Testing and commissioning"

⚠ **ATTENTION: According to the most recent European legislation, the implementation of an automation system must comply with the harmonised standards provided by the Machinery Directive in force, which enables declaration of the presumed conformity of the automation. Taking this into account, all operations regarding connection to the electricity grid, as well as product testing, commissioning and maintenance, must be performed exclusively by a qualified and skilled technician!**

- Before proceeding with the installation of the product, check that all the materials are in good working order and suited to the intended applications
- This product is not intended to be used by persons (including children) whose physical, sensory or mental capacities are reduced, or who lack the necessary experience or skill
- Children must not play with the appliance
- Do not allow children to play with the fixed control devices of the product. Keep the remote controls away from children.

⚠ **ATTENTION In order to avoid any danger from inadvertent resetting of the thermal cut-off device, this appliance must not be powered through an external switching device, such as a timer, or connected to a supply that is regularly powered or switched off by the circuit**

- Provide a disconnection device (not supplied) in the plant's power supply grid, with a contact opening distance permitting complete disconnection under the conditions dictated by overvoltage category III
- Handle the product with care during installation, taking care to avoid crushing, denting or dropping it, or allowing contact with liquids of any kind. Keep the product away from sources of heat and naked flames. Failure to observe the above can damage the product, and increase the risk of danger or malfunction. Should this happen, stop installation immediately and contact Customer Service
- The manufacturer assumes no liability for damage to property, items or persons resulting from non-compliance with the assembly instructions. In such cases the warranty for material defects is excluded
- The weighted sound pressure level of the emission A is lower than 70 dB(A)
- Cleaning and maintenance reserved for the user must not be carried out by children
- Before working on the system (maintenance, cleaning), always disconnect the product from the mains power supply
- Check the system periodically, in particular all cables, springs and supports to detect possible imbalances, signs of wear or damage. Do not use if repairs or adjustments are necessary, since installation failure or an incorrectly balanced door may cause injury
- The packing materials of the product must be disposed of in compliance with local regulations
- When operating a biased-off switch, make sure that other persons are kept away
- When operating the gate, keep an eye on the automated mechanism and keep all bystanders at a safe distance until the movement has been completed
- Do not operate the product if anyone is working nearby; disconnect its power supply before permitting such work to be done

1.1 - INSTALLATION WARNINGS

- Prior to installing the drive motor, check that all mechanical components are in good working order and properly balanced, and that the automation moves correctly
- If the gate or door being automated has a pedestrian gate, then the system must include a control device that will inhibit the operation of the motor when the pedestrian gate is open
- Make sure that the control devices are kept far from moving parts but nonetheless in a visible position. Unless a selector is used, the control devices must be installed at a height of at least 1.5 m and must not be accessible
- That windows, having a gap exceeding 200 mm when open, are to be closed using a biased-off switch if the opening movement is controlled by a fire-sensing system
- Ensure that entrapment between the driven part and the surrounding fixed parts due to the opening movement of the driven part is avoided
- Permanently fix the label concerning the manual release adjacent to its actuating member
- After installing the drive motor, make sure that the mechanism, protective system and all manual manoeuvres operate properly

1.2 - PRELIMINARY CHECKS AND IDENTIFICATION OF THE TYPE TO BE USED

The automation device should not be used until installation, as specified in "Testing and start-up", has been performed.
It should be remembered that the device does not compensate for defects caused by improper installation, or poor maintenance, thus, prior to proceeding with installation, ensure that the structure is suitable and meets current standards and, if necessary, perform any structural modifications aimed at the implementation of safety gaps and the protection or segregation of all crushing, shearing and transit zones, and verify that:

- The gate has no friction points, either during closing or opening.
- The gate must be equipped with mechanical stoppers.
- The gate is well balanced, i.e. there is no tendency to move spontaneously when stopped in any position.
- The position identified for fixing the motor reducer allows easy and safe manual manoeuvring, compatible with the size of the motor reducer itself.
- The support on which the automation device will be fixed is solid and durable.
- The mains power supply to which the automation device is connected has a dedicated safety earthing system and differential breaker with tripping current less than or equal to 30 mA (the breaker gap distance should be greater than or equal to 3 mm).

Warning: The minimum safety level depends on the type of use; please refer to the following outline:

	CLOSURE USE TYPE		
TYPE OF ACTIVATION COMMANDS	**GROUP 1** Informed people (use in private area)	**GROUP 2** Informed people (use in public area)	**GROUP 3** Informed people (unlimited use)
Man-present command	A	B	Not possible
Remote control and closure in view (e.g. infrared)	C or E	C or E	C and D or E
Remote control and closure not in view (e.g. radio)	C or E	C and D or E	C and D or E
Automatic control (e.g. timed closure control)	C and D or E	C and D or E	C and D or E

GROUP 1 - Only a limited number of people are authorised for use, and closure is not in a public area. Examples of this type are gates inside business premises, where the sole users are employees, or a part of them who have been suitably informed.

GROUP 2 - Only a limited number of people are authorised for use, but in this case, closure is in a public area. An example of this may be a company gate that accesses onto a public street, and which is only used by employees.

GROUP 3 - Anyone can use the automated closure, which is thus located on public land. For example the access gate to a supermarket or an office, or a hospital.

PROTECTION A - Closure is activated by means of a control button with the person present, i.e. with maintained action.

PROTECTION B - With the person present, closure is activated by a command controlled by means of a key-switch or the like, in order to
prevent use by unauthorised persons.

PROTECTION C - Restricts the force of the leaf of the door or gate. I.e., in the case of the gate striking an obstacle, the impact force must fall within a curve established by the regulations.

PROTECTION D - Devices, such as photocells, capable of detecting the presence of people or obstacles. They may be active on just one side or on both sides of the door or gate.

PROTECTION E - Sensitive devices, such as footboards or immaterial barriers, capable of detecting the presence of a person, and installed in such a way that the latter cannot be struck in any way by a moving leaf or panel. These devices should be active within the entire "danger zone" of the gate. The Machinery Directive defines "Danger Zone" as any zone surrounding and/or near machinery where the presence of an exposed person constitutes a risk to the health and safety of that person.

The risk analysis should take into consideration all danger zones for the automation device, which should be appropriately protected and marked.

In a clearly visible area, apply a sign with information identifying the motorised door or gate.

The installer should provide the user with all the information relating to automatic operation, emergency opening and maintenance of the motorised door or gate.

1.3 - EU DECLARATION OF CONFORMITY AND DECLARATION OF INCORPORATION OF PARTLY COMPLETED MACHINE

Declaration in accordance with Directives: 2014/35/UE (LVD); 2014/30/UE (EMC); 2006/42/CE (MD) ANNEX II, PART B

The manufacturer V2 S.p.A., headquarters in Corso Principi di Piemonte 65, 12035, Racconigi (CN), Italy

Under its sole responsibility hereby declares that:
the partly completed machinery model(s):
SL XL 4000I

Description: electromechanical actuator for sliding gates

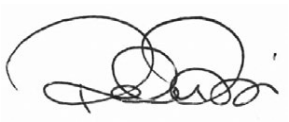
- is intended to be installed on sliding gates, to create a machine according to the provisions of the Directive 2006/42/EC. The machinery must not be put into service until the final machinery into which it has to be incorporated has been declared in conformity with the provisions of the Directive 2006/42/EC (annex II-A).
- is compliant with the applicable essential safety requirements of the following Directives:
  Machinery Directive 2006/42/EC (annex I, chapter 1)
  Low Voltage Directive 2014/35/EU
  Electromagnetic Compatibility Directive 2014/30/EU
  Directive RoHS3 2015/863/EU

Furthermore, the product complies with the following standards:
EN IEC 61000-6-2:2019, EN IEC 61000-6-3:2021
EN 60335-1:2012 + A11:2014 + A13:2017 + A1:2019 + A2:2019 + A14:2019 + A15:2021, EN 62233:2008, EN 60335-2-103:2015

The relevant technical documentation is available at the national authorities' request after justifiable request to:
V2 S.p.A.
Corso Principi di Piemonte 65, 12035, Racconigi (CN), Italy

The person empowered to draw up the declaration and to provide the technical documentation:

Roberto Rossi
Legal representative of V2 S.p.A.
Racconigi, 10/01/2024



PRODUCT COMPLIANCE WITH EU REGULATION 2023/826 (Standby)

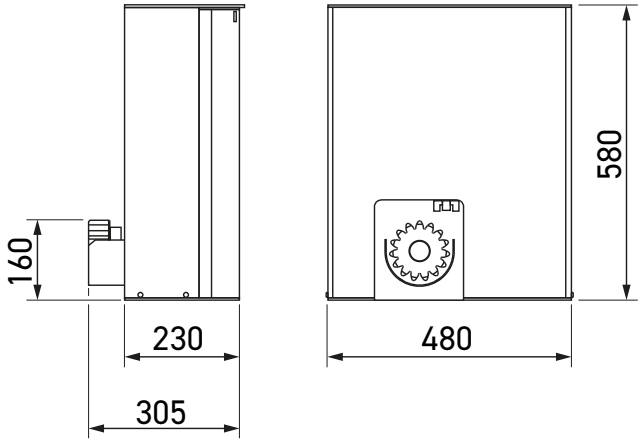
This product complies with the criteria set out in the "Standby" regulation. The control panel goes into Standby Mode after one of its main functions ends.

This product has a STBY PWR output from which you can draw power for additional accessories.
This product has a RECEIVER connector and an ADI connector onto which accessory cards can be inserted for additional functions.

When calculating consumption in Standby Mode, the energy consumption of the accessories was not considered. Check the consumption of these accessories in the respective instructions.

2 - TECHNICAL DATA

Maximum gate weight	4000 Kg
Power supply	230 V~ 50/60 Hz
Full load absorption	5 A
Gate speed	0,016 - 0,32 m/s
Maximum thrust	3200 N
Cycles / hour (10 meter gate)	14 (16 cm/c)
Pinion	M6-Z18
Operating temperature	-20 +55 °C
Motor weight	60 Kg
Protection	IP55
Maximum load accessories	10 W
Protection fuses	F5A - 250V

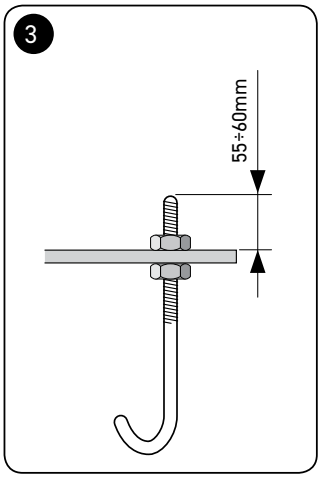


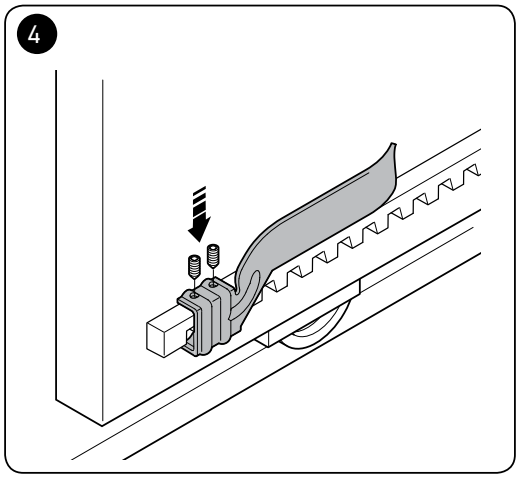
3 - INSTALLATION OF THE GEAR MOTOR

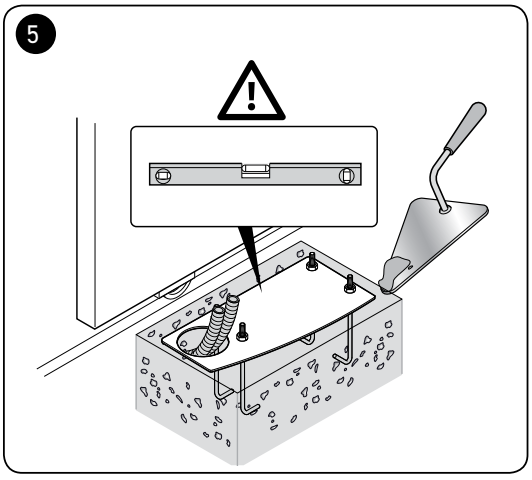
If a base for the gear motor already exists, fixing must be performed directly to the surface by means of expansion bolts. If this is not so, it is necessary to:

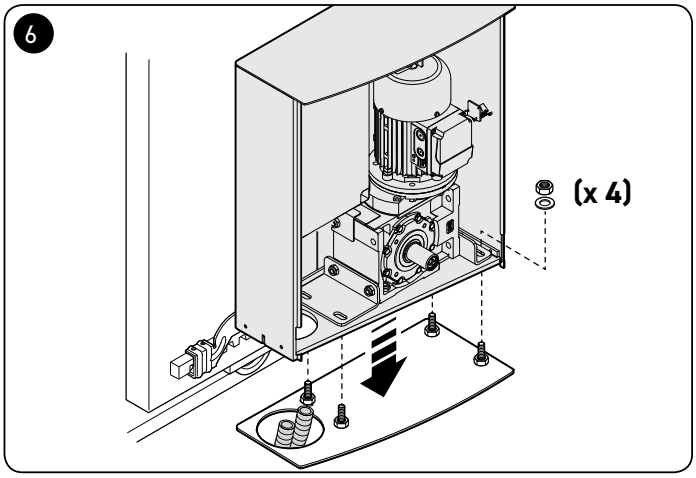
1. Dig an adequately large foundation hole.
2. Prepare one or more conduits for the electrical cables as shown in fig. 5.
3. Assemble the four clamps on the foundation plate setting one nut underneath and one on top of the plate as in fig. 3 so that the threaded section protrudes out of the plate as much as possible.
4. Pour the concrete and, before it starts to harden, set the foundation plate checking that it is parallel to the leaf and perfectly level as shown in fig. 5. Wait for the concrete to harden completely.
5. Remove the body from the gear motor following the procedure shown in fig.7 in reverse order.
6. Place the gear motor on top of the foundation plate and make sure it is perfectly parallel to the leaf, then secure it by tightening the 4 nuts with washers to the respective clamps as shown in fig. 6.
7. Release the pinion as shown in the "Release and manual movement" paragraph in the Chapter "Instructions and Warnings for users of the SL XL4000I gear motor".
8. Open the leaf up completely and place the first piece of the rack on the pinion and check that the beginning of the rack corresponds to the beginning of the leaf. Make sure that there is at least 2÷3 mm of play between the rack and the pinion, then fasten the rack to the leaf using suitable means.
9. Slide the leaf, using the pinion as a reference point for the fastening the other elements of the rack.
10. Cut away any excess of the rack.
11. Open and close the gate several times and make sure that the rack is aligned with the pinion with a maximum tolerance of 10- 15 mm. Moreover, check that the play of 2-3 mm between the pinion and the rack has been respected along the entire length.
12. Fix the two "Opening" and "Closing" limit switch brackets with the relative dowels to the outer sides of the rack as shown in fig. 4. Considering that the leaf will slide for a further 2÷3 cm after the limit switches have activated, the brackets should be positioned at a sufficient distance from the mechanical stops.
13. the operation described in point 7 in reverse and block the pinion.
14. Secure the body to the SL XL4000I as shown in fig. 7 and ensure that the limit switch lever positioned above the pinion moves freely.
15. Close the gear motor door and make sure that the safety microswitch positioned to the right of the electric motor is activated.

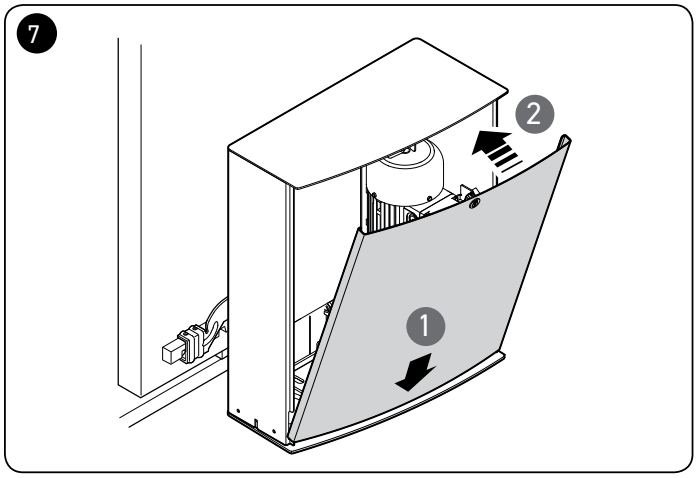
⚠ **In order to prevent the weight of the leaf from affecting the gear motor, it is important that there is a play of 2÷3 mm between the rack and the pinion.**











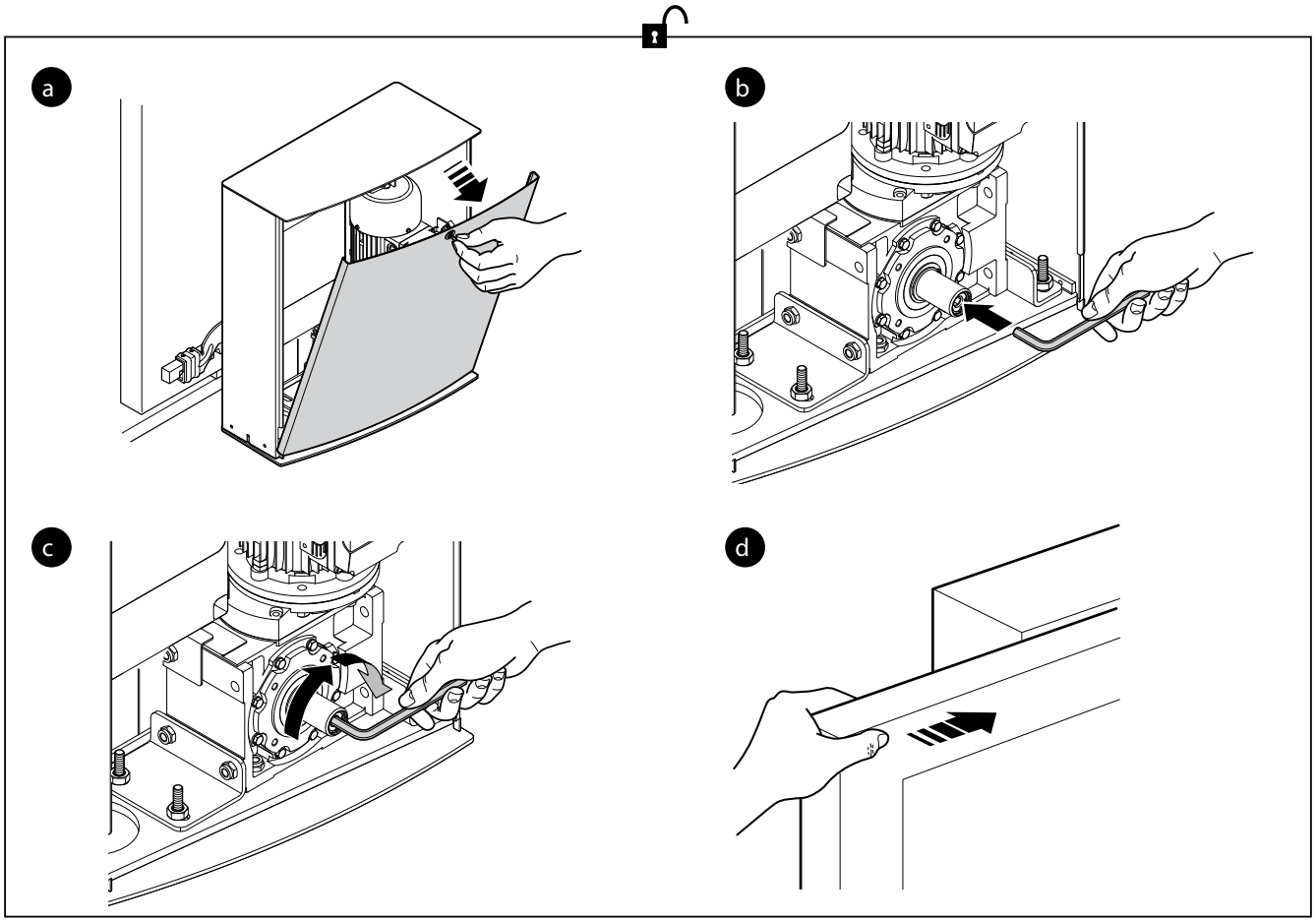
3.1 - MOTOR OVERRIDING SYSTEM

The gearmotor is equipped with a mechanical system that allows for opening and closing the gate manually.

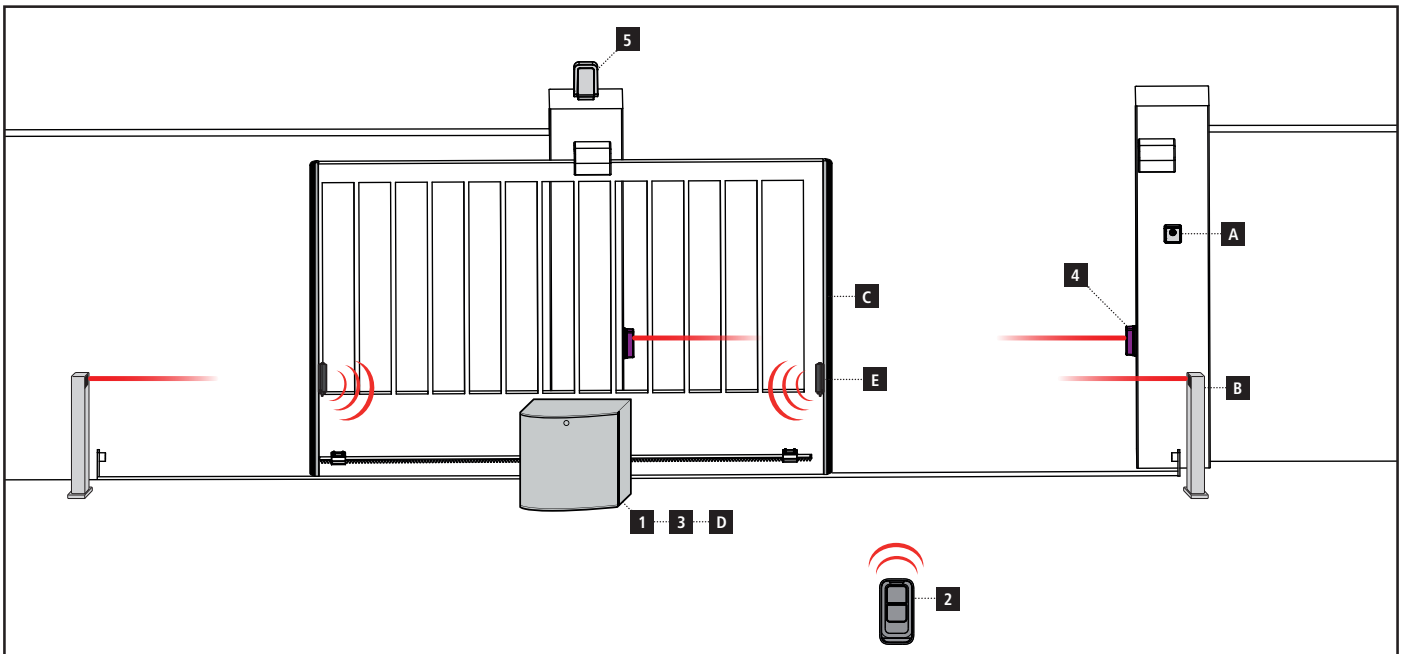
Manual operation must be performed in the case of a power outage or in the event of anomalies affecting the system.

In the event of a gearmotor fault, it is still possible to try release the motor to check whether the fault lies in the release mechanism.

To lock the gearmotor, carry out the following operations in reverse order.



3.2 - INSTALLATION LAYOUT



COMPONENTS

1 Motor
2 Transmitter
3 Receiving module
4 Photocells
5 Flashing light

ADDITIONAL ACCESSORIES

A Key switch
B Pillar photocells
C Safety edges
D WES base (via radio management of edges)
E WES sensors

LENGTH OF THE CABLE	< 10 metres	from 10 to 20 metres	from 20 to 30 metres
Power supply 230V	3G x 1,5 mm^2	3G x 1,5 mm^2	3G x 2,5 mm^2
Photocells (TX)	2 x 0,5 mm^2	2 x 0,5 mm^2	2 x 0,5 mm^2
Key switch	4 x 0,5 mm^2	4 x 0,5 mm^2	4 x 0,5 mm^2
Photocells (RX)	2 x 0,5 mm^2	2 x 0,5 mm^2	2 x 0,5 mm^2
Flashing light	2 x 1,5 mm^2	2 x 1,5 mm^2	2 x 1,5 mm^2
Antenna (integrated into the flashing light)	RG174	RG174	RG174

4 - CONTROL UNIT

KB230 is provided with a display that, not only makes programming simple, but also allows a continuous monitoring of the input statuses; in addition, thanks to a menu structure, the working schedule and the operation logic can be set easily.

In compliance with the European standards concerning electrical safety and electromagnetic compatibility it has been equipped with the low voltage circuit total electric insulation (motors included) from the network voltage.

Other characteristics:

- Automatic learning of the limit switch position
- Tests for safety devices (photocells, safety ribbons and triac) before each opening
- Deactivation of safety inputs through the configuration menu: no jumper is required for terminals concerning safety devices that have not been installed, yet. You will only need to disable this function from its relevant menu
- Automatic shutdown of all peripherals when the control unit is not operating the gate, to keep the power absorbed in stand-by below 500 mW.
- Synchronized operation of two motors using the SYNCRO optional module

⚠ **Installation of control unit and safety devices must be carried out with power disconnected.**

4.1 - POWER SUPPLY

The control unit must be fed by a 230V - 50Hz electric line, protected by a differential magnetothermal switch complying with the law provisions in force.

Connect power supply cables to terminals **L** and **N** of KB230 control unit.

4.2 - FLASHING LIGHT

KB230 control unit provides for a 230V - 40W Flashing light equipped with intermittence inside.

Connect Flashing light cables to terminals **B1** and **B2** of the control unit.

4.3 - COURTESY LIGHTS

Thanks to the output COURTESY LIGHT the control unit allows the connection of an electric appliance (e.g. courtesy light or garden lights), controlled automatically or by means of the special transmitter key.

The output COURTESY LIGHT is a simple N.O. contact with no power supply.

Connect the cables to terminals **B3** and **B4**.

4.4 - ACTIVATION INPUTS

KB230 control unit is equipped with two activation inputs (START and START2), whose operation depends on the programmed operation modes (see Strt item of programming menu):

Standard mode
START = START (a command will cause the complete opening of the gate)
START2 = PEDESTRIAN START (a command will cause the partial opening of the gate)

Open/Close command
START = OPENING (always controls the gate opening)
START2 = CLOSING (always controls the gate closing)
This is an impulse command, that is to say that an impulse will cause the complete gate opening or closing.

Manned operation
START = OPENING (always controls the gate opening)
START2 = CLOSING (always controls the gate closing)
This is a monostable command, that is to say, the gate will be opened or closed as long as the contact is closed and it will immediately stop as the contact is open

Mode with presence or fire sensor
In this mode, the PEDESTRIAN START input can be used to connect a maintained command device, such as a presence detector, a magnetic loop or a fire sensor.
Closing the contact causes the gate to open immediately and completely (or reopen if the gate is closing), and closing is no longer possible until the contact opens.

Depending on the option chosen in the Strt menu, you can have normal operation, suitable for presence detectors, or emergency operation, for the fire sensor; in the first case, the opening is subject to all the controls of a normal opening, and if automatic re-closing is programmed, when the contact reopens the gate closes automatically; in the second case only the checks that could have consequences on safety are carried out, and a start command is necessary to close the gate once the alarm is over.

In both modes, the START input starts the cycle as in standard mode.

ATTENTION! If the device that controls the opening must be powered by the control unit, terminal M3 must be used, so that the power supply is available even when the control unit is in stand-by.

Timer mode
This feature allows you to program time slots during the day for the gate to be open by using an external timer or other maintained command devices (e.g. magnetic loop detectors or presence detectors).

START = START (a command will cause the complete opening of the gate)
START2 = PEDESTRIAN START (a command will cause the partial opening of the gate)
The gate stays open (completely or partially) while the contact is closed on input; as soon as the contact is open the pause time count down will start, after which the gate will be closed again.

ATTENTION: Automatic closing must be enabled

NOTE: If the parameter P.APP = 0 the timer connected to START2 does not cause the opening, but can inhibit the automatic closing at preset times.

In all modes, inputs must be connected to devices having normally open contacts.

Connect cables of device controlling the START input between terminals **M1** (START) and **M4** (COM) of the control unit.
Connect cables of device controlling the START2 input between terminals **M2** (START2) and **M4** (COM) of the control unit.

The START input function can also be activated by pressing ∧ key (outside the programming menu) or by means of a remote control stored on channel 1 of MR receiver.

The START2 input function can also be activated by pressing ∨ key (outside the programming menu) or by means of a remote control stored on channel 2 of MR receiver.

4.5 - STOP

For a better safety, you can fit a stop switch that will cause the immediate gate stop when activated. This switch must have a normally close contact that will get open in case of operation.

In case the stop switch is operated while the gate is open, the automatic closing function will always be disabled. To close the gate again, you will need a start command.

The stop switch shares the input terminal with the sensitive edges; if you use this switch you must give up one of the two types of sensitive edges.

Connect the STOP switch cables between terminals **M7** (or **M8**) and **M9** of the control unit.

ATTENTION! If terminal M7 or M8 is used for a stop command, the control unit always considers it a normally closed input, regardless of the parameter setting Co.tE.

The STOP switch function can be activated by means of a remote control stored on channel 3 of MR receiver.

4.6 - PHOTOCELLS

The control unit considers two kinds of photocells, depending on the terminal to which they are connected:

Photocell 1
Photocells installed on the gate inner side, which are active both during the opening and the closing phase. When photocells 1 operate, the control unit stops the gate; as soon as the photocell beam is free, the control unit will open the gate completely.

⚠ **WARNING: Type 1 photocells must be installed so that they completely cover the opening area of the gate.**

Photocell 2
Photocells installed on the external gate side and which are active during the closing phase only. When photocells 2 operate, the control unit opens the gate immediately, without waiting for release.

KB230 control unit supplies a 24 Vdc power supply to photocells and it can perform a photocell operation test before starting the gate opening phase. Photocell power terminals are protected by an electronic fuse that stops current in case of overload.

- Connect power supply cables of photocells transmitter between terminals **M11 (-)** and **M12 (+)** of the control unit.
- Connect power supply cables of photocells receiver between terminals **M10 (+)** and **M11 (-)** of the control unit.
- Connect receiver output of photocells 1 between terminals **M5** and **M9** of the control unit and receiver output of photocells 2 between terminals **M6** and **M9** of the control unit.
  Use outputs having normally closed contact.

⚠ **ATTENZIONE**:
- If several couples of same kind photocells are mounted, their outputs must be connected in series.
- In case of reflection photocells, power supply must be connected to terminals **M11** and **M12** of the control unit to carry out the operation test.

4.7 - SAFETY RIBBONS

The control unit considers two kinds of safety ribbons, depending on the terminal to which they are connected:

Type 1
When type 1 safety ribbons operate during the gate opening phase, the control unit will close the doors for 3 seconds, then it stands still; when type 1 safety ribbons operate during the gate closing phase, the control unit will stand still immediately. The direction of the gate at next command of START or PEDESTRIAN START depends upon the parameter STOP (it inverts or continues the motion).
If the input STOP is disabled, the command makes the motion continue in the same direction.

Type 2
when type 2 safety ribbons operate during the gate opening phase, the control unit will stand still immediately; when type 2 safety ribbons operate during the gate closing, the control unit will open the doors for 3 seconds, then it will stand still. The direction of the gate at next command of START or PEDESTRIAN START depends upon the parameter STOP (it inverts or continues the motion). If the input STOP is disabled, the command makes the motion continue in the same direction.

Both the input can manage the classic safety edge with n.c. contact and the conductive rubber safety edge with 8,2 kohm nominal resistance.

Connect type 1 safety ribbons cables between terminals **M7** and **M9** of the control unit.
Connect type 2 safety ribbons cables between terminals **M8** and **M9** of the control unit.

In order to meet the requirements of the EN12978 rules, it is necessary to install safety edges controlled by a control unit continuously checking the proper working. If using control units suited to the test by power outage, connect the power supply cables of the control unit between terminals **M11** and **M12** of the control unit.
Otherwise, connect them between terminals **M10** and **M11**.

⚠ **WARNING:**

- Make use of safety ribbons having outputs with normally close contact.
- Outputs of same kind safety ribbons must be connected in series.

4.8 - EXTERNAL AERIAL

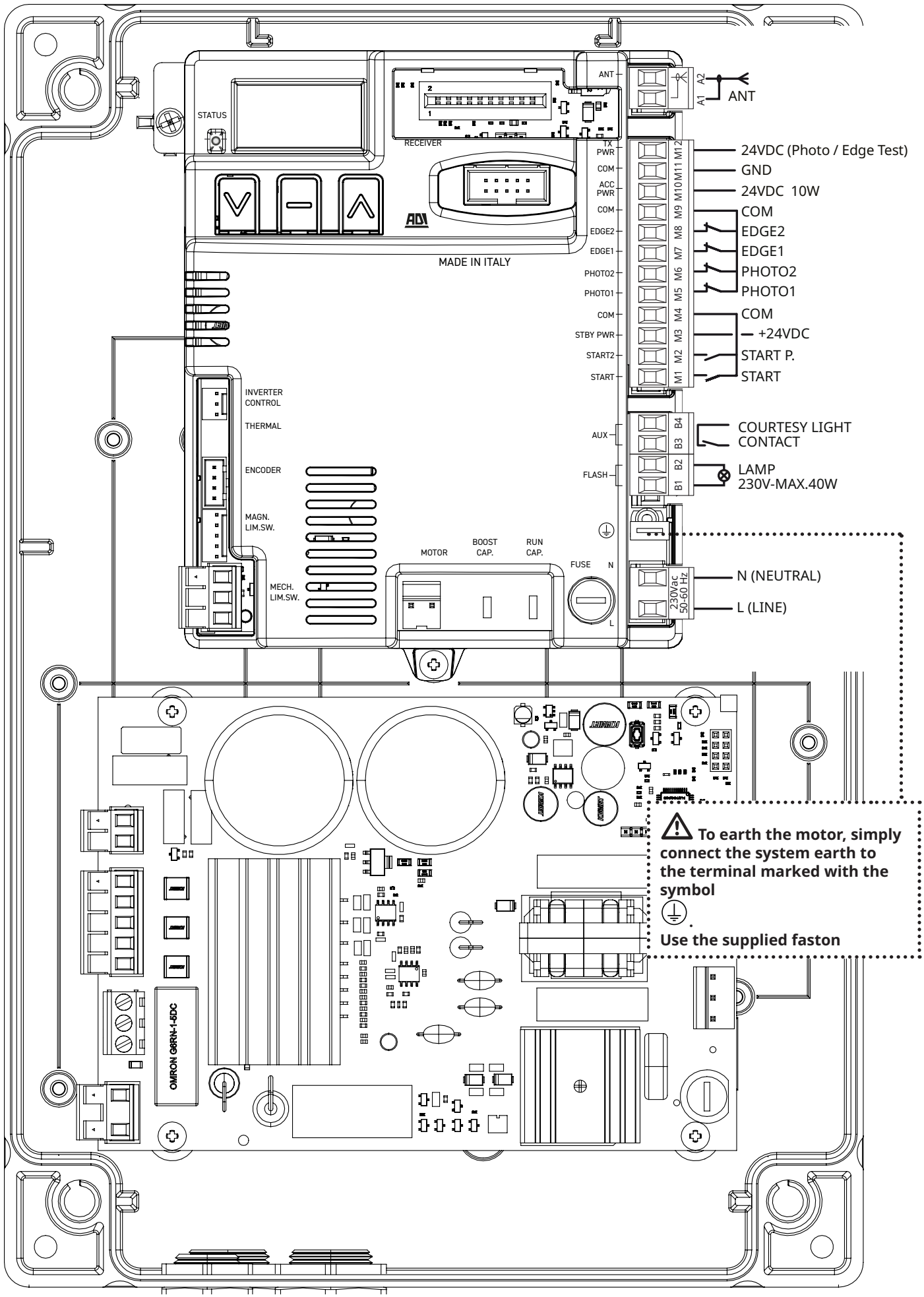
We suggest to use the external aerial (model: ANS433) in order to guarantee the maximal range.

Connect the antenna hot pole to terminal **A2** of the control unit and the braiding to terminal **A1**.

4.9 - ELECTRICAL CONNECTION

L	Power phase 230 Vac
N	Neutral 230 Vac
⏚	Ground
B1 - B2	Flashing light 230Vac - 40W
B3 - B3	Courtesy light
M1	START - Open command for connecting traditional devices with N.O. contact
M2	START2 - Pedestrian open command for connecting traditional devices with N.O. contact
M3	24Vdc power supply for activation devices available even when the control unit is in stand-by
M4	Common (-)
M5	Photocell 1. N.C. contact
M6	Photocell 2. N.C. contact
M7	Type 1 edges or STOP. N.C. contact
M8	Type 2 edges or STOP. N.C. contact
M9	Accessories common (-)
M10	24 Vdc power output for photocells and other accessories which are turned off during stand-by
M11	Accessory power common (-)
M12	24 Vdc supply - photocell/optical edge TX for functional Test. Connect power supply cables of photocells transmitter between terminals **M11** and **M12**
A1	Antenna shield
A2	Antenna

ADI	ADI module interface
RECEIVER	Plug-in receiver
FUSE	F5A - 250V
STATUS	FIXED GREEN: control unit active FLASHING GREEN control unit in stand-by RED: control unit in error or overload on the power supply


STATUS
RECEIVER
MADE IN ITALY
ANT
A2
A1
ANT
TX PWR
COM
ACC PWR
COM
EDGE2
EDGE1
PHOTO2
PHOTO1
COM
STBY PWR
START2
START
M12
M11
M10
M9
M8
M7
M6
M5
M4
M3
M2
M1
24VDC (Photo / Edge Test)
GND
24VDC 10W
COM
EDGE2
EDGE1
PHOTO2
PHOTO1
COM
+24VDC
START P.
START
INVERTER CONTROL
THERMAL
ENCODER
MAGN. LIM.SW.
MECH. LIM.SW.
AUX
FLASH
B4
B3
B2
B1
COURTESY LIGHT CONTACT
LAMP 230V-MAX.40W
MOTOR
BOOST CAP.
RUN CAP.
FUSE
N
L
230Vac 50-60 Hz
N (NEUTRAL)
L (LINE)
OMRON G6RN-1-5DC
To earth the motor, simply connect the system earth to the terminal marked with the symbol
.
Use the supplied faston

4.10 - PLUG IN RECEIVER

KB230 control unit is suitable for plugging in a MR receiver having a high-sensitivity super-heterodyne architecture.

⚠ WARNING: Pay attention to the way you connect the removable modules.

MR module receiver is provided with 4 channels and each of them is suitable for a command of KB230 control unit:

- CHANNEL 1 → START
- CHANNEL 2 → PEDESTRIAN START
- CHANNEL 3 → STOP
- CHANNEL 4 → COURTESY LIGHT

NOTE: Before programming 4 channels and function logics read carefully the instructions of MR.

4.11 - ADI INTERFACE

The ADI (Additional Devices Interface) interface of the control unit KB230 allows the connection to V2 optional modules.

Refer to V2 catalogue or to the technical sheets to see which optional modules with ADI interface are available for this control unit.

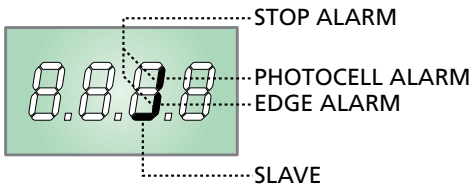
⚠ WARNING: Please read the instructions of each single module to install the optional modules.

For some devices, it is possible to configure the mode for interfacing with the control unit; in addition, it is necessary to enable the interface so that the control unit can process the signals arriving from the ADI device.

Please refer to the i.Adi programming menu to enable the ADI interface and access the device configuration menu. ADI devices use the display of the control unit to issue alarms or display the configuration of the device.

The device connected to the Adi interface is able to signal to the control unit three alarm signals, which are displayed on the control unit display as follows:

- PHOTOCELL ALARMS - the upper segment comes on: the gate stops moving, when the alarm stops opening restarts.
- EDGE ALARM - the lower segment comes on: inverts motion of the gate for 3 seconds.
- STOP ALARM - both segments start flashing: the gate stops and cannot restart until the alarm stops.
- SLAVE - segment steadily lit: it is used by the optional module SYNCRO to indicate that the control unit is configured as SLAVE.

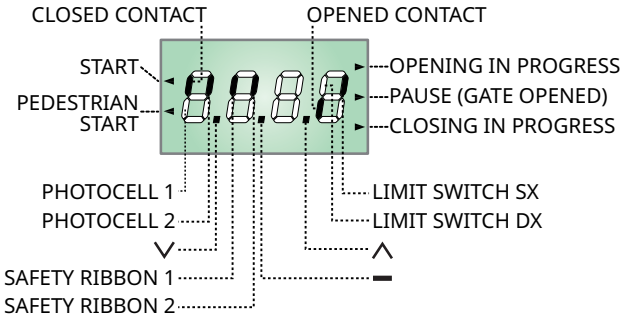


5 - CONTROL PANEL

5.1 - DISPLAY

When power is on, the control unit checks that display correctly operates by switching on all segments for 1 sec. 8.8.8.8.
In the next second, the software version of the control panel is indicated (baptism) S.Gt1 o S.Gt2.
Firmware version, e.g. Pr 1.0, will be viewed in the following 2 sec.

Panel will be viewed upon completion of this test.



The control panel represents the physical status of the terminal board contacts and of the program mode keys: if the upper vertical segment is on, the contact is closed; if the lower vertical segment is on, the contact is open (the above picture shows an instance where the inputs PHOTO1, PHOTO2, EDGE1 and EDGE2 have all been correctly connected).

NOTE: when the control unit is in stand-by, the status of the inputs is undefined and is not shown on the display. Only the status of the activation inputs (left arrow) and any pause status (right arrow) is displayed.

NOTE: if you are using an ADI module, other segments may appear on the display, see the paragraph dedicated to the "ADI INTERFACE"

Points being among display digits show the status of programming push-buttons: as soon as a push-button is pressed, its relevant point turns on.

The arrows on the left of the display show the state of the start inputs. The arrows light when the related input is closed.

The arrows on the display right side show the gate status:

- The highest arrow turns on when the gate is into its opening phase. If it blinks, it means that the opening has been caused by a safety device (border or obstacle detector).
- The central arrow shows that the gate is on pause. If it blinks, it means that the time countdown for the automatic closing has been activated.
- The lowest arrow blinks when the gate is into its closing phase. If it blinks, it means that the closing has been caused by a safety device (border or obstacle detector).

5.2 - USE OF THE KEYS FOR PROGRAMMING

The control unit functions and times are programmed by means of a special configuration menu, which can be accessed and explored by using the 3 keys, ∧ ∨ −, located on the side of the control unit display.

PLEASE NOTE: Outside the configuration menu, pressing the ∧ key activates the START command, pressing the ∨ key activates the PEDESTRIAN START command.

There are the following three kinds of menu items:
- Function menu
- Time menu
- Value menu

Function menu setup
Function menus allow selecting a function from among a group of available options. When you enter into a function menu, the current active option will be viewed; you can scroll all available options through ∨ and ∧ keys. By pressing the − key, you will activate the option viewed and you will return to the configuration menu.

Time menu setup
Time menus allow setting a function duration. When you enter into a time menu, the current setup value will be viewed; the display mode depends on the current value:
- Each time you press ∧ key, current time value increases and each time you press the ∨ key, current time value decreases.
- By holding down the ∧ key, you can quickly increase the time value, up to reach the max. value allowed for this item.
- Vice versa, by holding down the i key, you can quickly decrease the time value down to reach 0.0"
- In some circumstances, setting the value to 0 means that the relevant function is disabled, in this case, no will appear instead of 0.0"
- By pressing on − you will confirm the displayed value and you will return to the configuration menu.

Value menu setup
Value menus are similar to time menus; however, the setup value can be any number.
By holding down ∧ or ∨ keys, the value will increase or decrease slowly.
By pressing on − you will confirm the displayed value and you will return to the configuration menu.

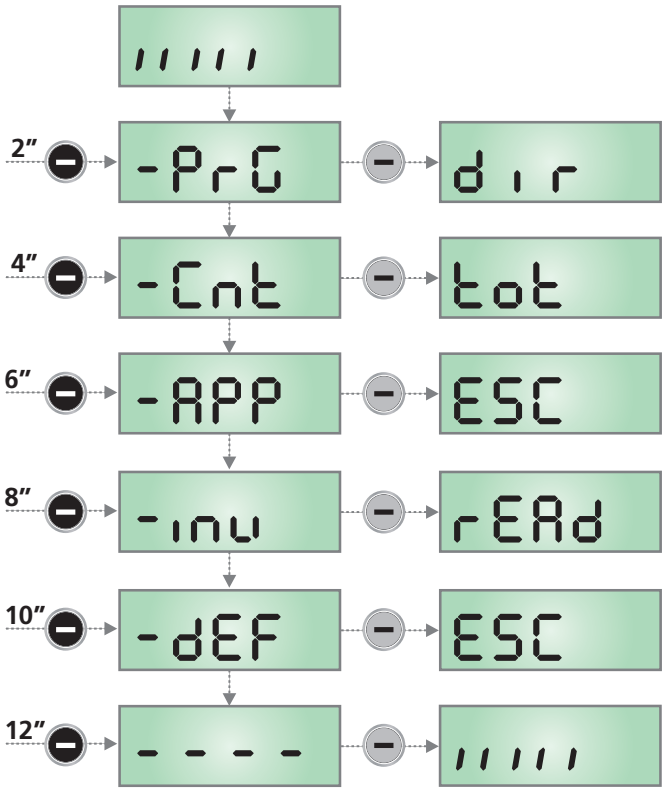
The main programming menus of the control unit are shown in
the next pages.
To go through the menus use the three keys ∧ ∨ − according to the following chart:

−	Press and release the push-button −
2" −	Keep pressed the push-button − for 2 seconds
−	Release the push-button −
∧	Press and release the push-button ∧
∨	Press and release the push-button ∨

6 - ACCESSING THE CONTROL UNIT SETTINGS

1. Press and hold the − key until the display shows the menu desired
2. Release the − key: the display will show the first item in the sub-menu
   - -PrG Programming the control unit (chapter 13)
   - -Cnt Cycle counter (chapter 11)
   - -APP Self-learning of working times (chapter 9)
   - -Inv Inverter board functional test (chapter 10)
   - -dEF Loading the default parameters (chapter 8)

⚠ **WARNING: in case no operation is carried out for more than one minute, the control unit exits from the programming mode without saving any of your setups and changes, which will get lost.**



7 - QUICK CONFIGURATION

This paragraph concerns a quick procedure to set the control unit and set it at work immediately.

We recommend following these instructions, in order to check quickly the correct operation of control unit, motor and accessories, and then changing the configuration in case of any non-satisfactory parameter.

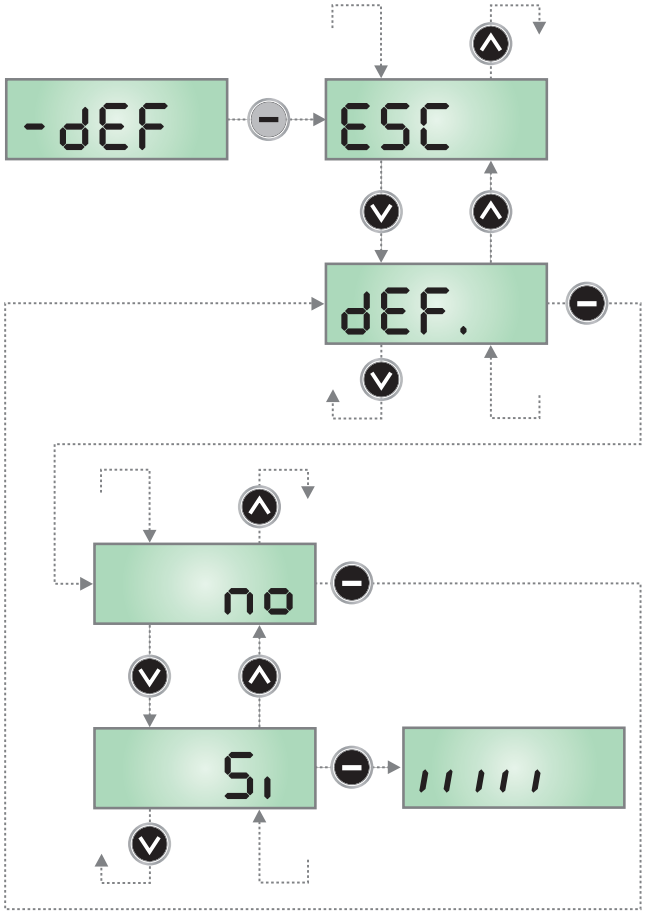
1. Call up the default configuration: see chapter 8
2. Set items
   dir - Fot1 - Fot2 - Co51 - Co52
   according to the safety devices installed on the gate.
   For the position of the item menus inside the main menu and for the options related to each item menu, refer to the
   chapter 12.
3. Start the self-learning cycle: see chapter 9 (SELF-LEARNING OF WORKING TIMES)
4. Check that the automation work properly and if necessary modify the configuration of the desired parameters.

8 - LOADING THE DEFAULT PARAMETERS

If necessary, it is possible to restore all parameters to their standard or default values (see the final summary table).

⚠ **PLEASE NOTE: This procedure results in the loss of all customised parameters.**

1. Press and hold the − key until the display shows -dEF
2. Release the − key: the display shows ESC (only press the − key if it is desired to exit this menu)
3. Press the ∨ key: the display shows dEF
4. Press the − key: the display shows no
5. Press the ∨ key: the display shows S1
6. Press the − key: all parameters are overwritten with their default values (see Chapter 12), the control units exits programming mode and the display shows the control panel.



9 - SELF-LEARNING OF WORKING TIMES

This menu allows the automatic learning of the times necessary to open and close the gate.

During the travel learning cycle, you can set the point at which you want the gate to begin to slow down as it approaches the end stop. Press the button ∨ when the gate is in this point; the stored position can subsequently be corrected by acting on the rA.AP and rA.Ch parameters of the menu

⚠ **CAUTION: to perform the self-learning procedure it is necessary to disable the ADI interface by means of the menu i.Adi .**
If some safeties are controlled by means of the ADI module, they will not be active during the self-teaching stage.

⚠ **CAUTION: ATTENTION: before proceeding, make sure to position the mechanical stops and the limit sensors correctly.**

Position the gate halfway and proceed as follows:

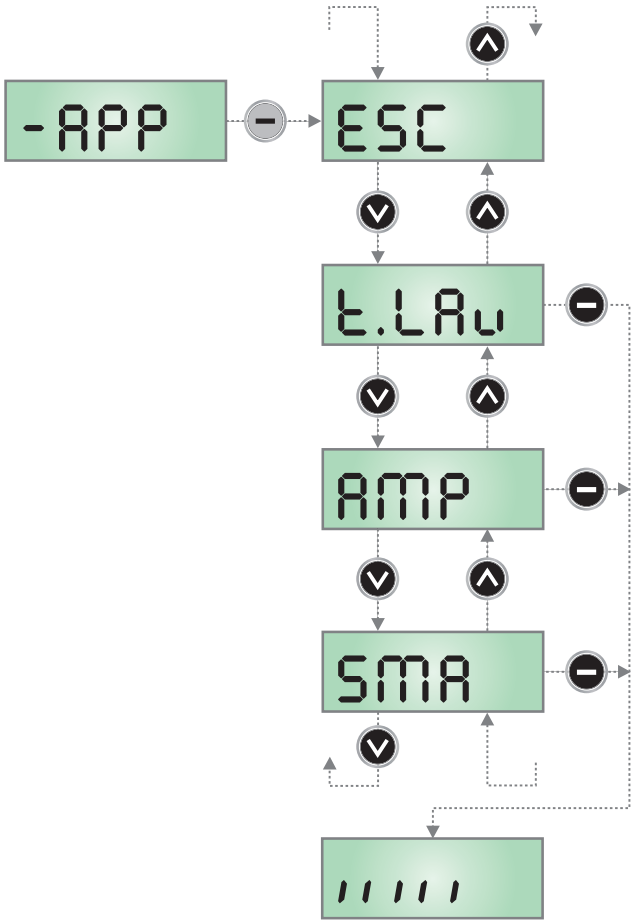
1. Press and hold the − key until the display shows -APP
2. Release the button − and select the type of learning you wish to perform using the buttons ∨ e ∧ :

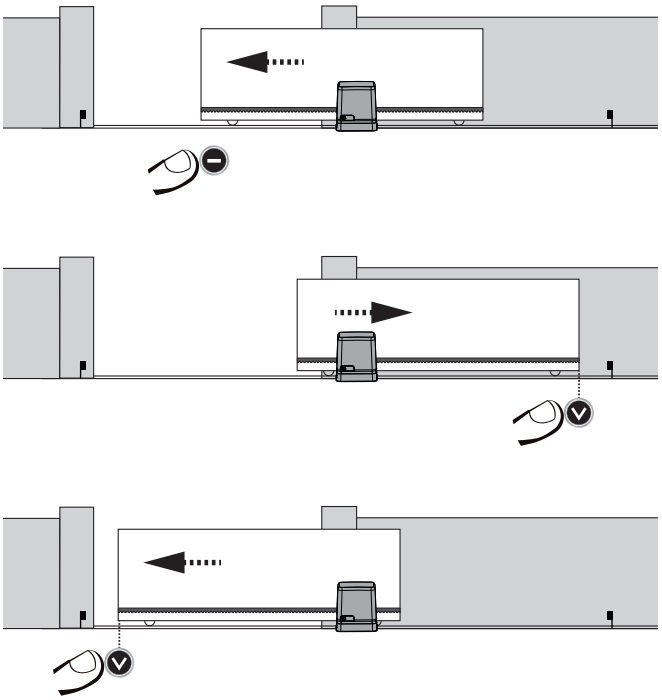
   ESC no learning is performed. Pressing the button − returns to normal operation

   t.LAu position learning: the gate performs a cycle at reduced speed (Po.AL parameter) to acquire the limit switch positions. The procedure will take place as follows:
   - **a.** The gate is activated in closing until the limit switch is reached.
   - **b.** The gate is activated in opening until the limit switch is reached.
     Press the button ∨ to slow down the gate before reaching the stop, this point is stored as the start of slowing down.
   - **c.** The gate is activated in closing until the limit switch is reached.
     Press the button ∨ to slow down the gate before reaching the stop, this point is stored as the start of slowing down.

   AMP learning efforts: the gate performs a cycle at normal speed to acquire the currents and stores the values of SEn.A and SEn.C

   SMA learning positions + efforts: the gate first executes
   the learning positions cycle and then the learning efforts cycle
3. Press the button − to start the self-learning cycle: the display shows the control panel and the time self-learning procedure begins.





10 - INVERTER BOARD FUNCTIONAL TEST

This menu allows you to perform a functional test on the INVERTER board.

1. Hold down the − button until the display shows -inu
2. Release the − button: the display shows rEAd
3. If the inverter board works properly after a few seconds the display shows the firmware version of the board.

NOTE: at this stage with the keys ∧ and ∨ you can access the diagnostics menu.

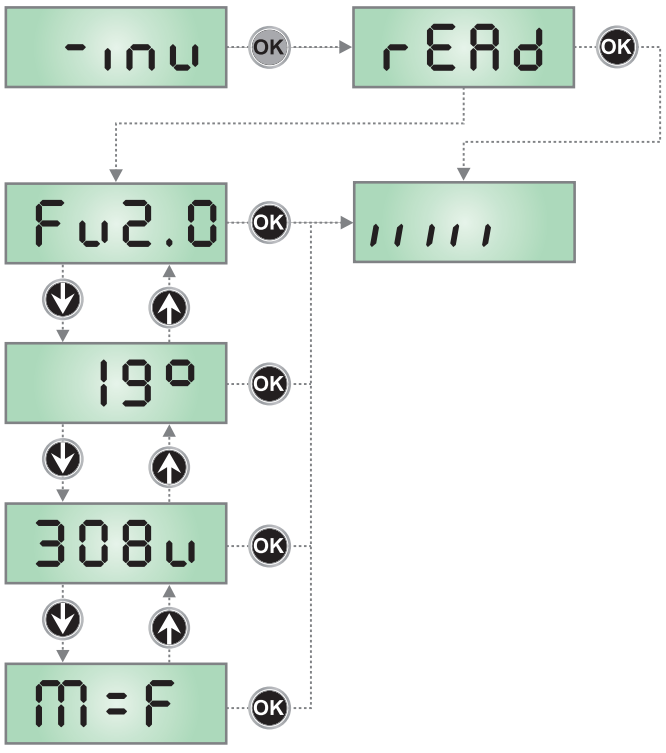
19° driver temperature (sample value)

308u motor supply voltage (example value)

M=1 motor type (1 = SLM 1500I / 2 = RESERVED)

Consult these menus only as directed by V2 Technical Support.

4. Press the − button: the control unit exits programming and the display shows the control panel
5. If the display continues to display rEAd, it means that the INVERTER board is not working properly. Refer to the V2 Technical Support.



11 - READING THE COUNTER OF THE CYCLES AND EVENTS MEMORY

KB230 control unit counts the completed opening cycles of the gate and, if requested, it shows that service is required after a fixed number of cycles.
Furthermore, events can be recorded which occurred during operation, associating to each a code and a date/time in which each occurred; this information must be communicated to the support service if problems arise.

ATTENTION: the correct date/time information of an event is stored only if the information is supplied to the control panel by a device equipped with a clock, such as the WiFi interface.

There are 3 counters available:

- A totalizing counter for completed opening cycles thatcannot be zeroed (option tot of item Cnt)
- A downward counter for the number of cycles before the next request for service (option SEru of item Cnt).

  When the counter of missing cycles for the next maintenance intervention reaches zero, the control unit signals the maintenance request by means of an additional pre-flashing of 5 seconds. The signal is repeated at the beginning of each opening cycle, until the installer accesses the meter reading and setting menu, possibly programming the number of cycles after which maintenance will be required again. If a new value is not set (i.e. the counter is left at zero), the maintenance request signaling function is disabled and the signaling is no longer repeated.
- Events counter (option EuEn)

he scheme hereafter shows how to read the totalizing counter, how to read the number of cycles before the next service is required as well as how to program the number of cycles before the next request for service (as for the example shown, the control unit completed no. 12451 cycles and there are no. 1300 cycles before the next service request; the code of the last recorded event is 176, and it occurred at 14.14.19 on 20 August.

**AREA 1 IS THE READING OF THE TOTAL NUMBER OF COMPLETED CYCLES;
THROUGH ∨ AND ∧ KEYS, YOU CAN ALTERNATE THE DISPLAY OF THOUSANDS OR UNITS.**

AREA 2 IS THE READING OF THE NUMBER OF CYCLES BEFORE THE NEXT REQUEST FOR SERVICE: ITS VALUE IS ROUNDED DOWN TO THE HUNDREDS.

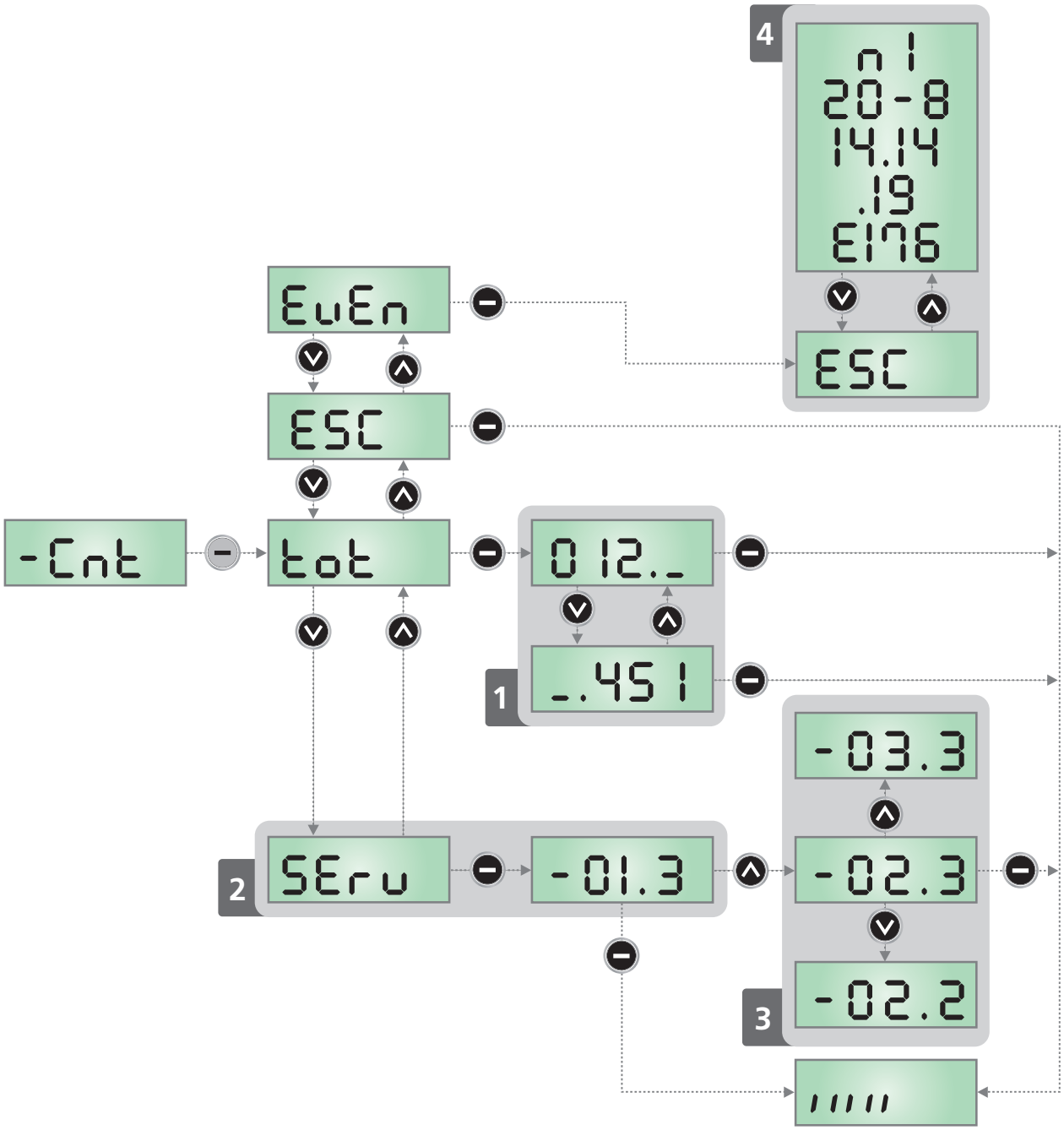
AREA 3 REPRESENTS THE SETTING OF THIS COUNTER: ON FIRST PRESSING OF THE KEY ∨ OR ∧ THE CURRENT VALUE OF THE COUNTER, IT IS ROUNDED OFF TO THE THOUSAND, EVERY SUBSEQUENT PRESS INCREASES THE SETTING BY 1000 UNITS OR DECREASES BY 100. THE PREVIOUSLY DISPLAYED COUNT IS LOST.

Area 4 represents reading of the events memory.
The first data is an index that allows identification of the event: n 1 is the last event recorded, n 2 is the previous one and so on.
The other data are automatically displayed in succession and provide information on the date/time (each data remains displayed for approximately one second, if you want to temporarily stop the display, keep the MENU key pressed); the last data displayed is the code of the event (in some cases, after the event code additional data is displayed), then the sequence restarts from the index.

The data are displayed for 1 minute, after which the display returns to normal view.

All events with their meaning can be viewed in the table available at the following link

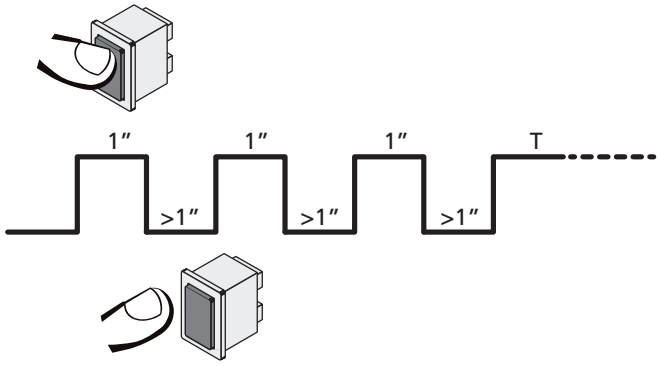
EVENTS TABLE



12 - EMERGENCY DEAD MAN OPERATION

This operational mode can be used to move the gate in DEAD MAN mode in case of malfunctioning of photocell, edge, limit switches or encoder.

To activate the function the START command must be pressed 3 times (presses must last at least 1 second; the pause between commands must last at least 1 second).



The fourth START command activates the gate in MAN PRESENT mode. To move the gate keep the START command pressed for the duration of the operation (time T).
The function will automatically turn off after 10 seconds of inactivity of the gate.

NOTE: if the StrE parameter is set as StAn, the Start command (from the terminal block or remote control) moves the gate in the open and closed directions alternatively (unlike the normal DEAD MAN mode).

13 - PROGRAMMING THE CONTROL UNIT

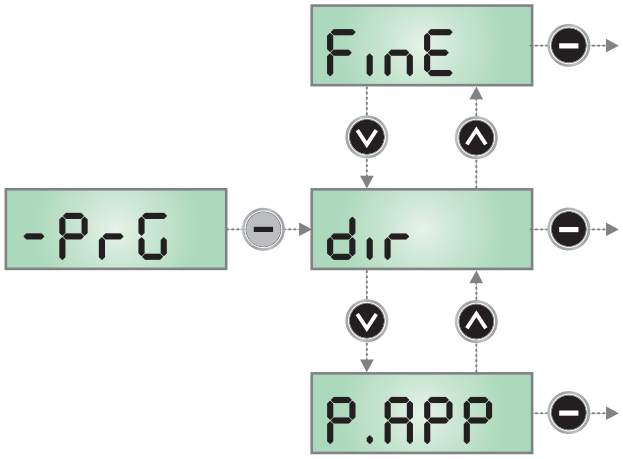
The configuration menu -PrG consists in a list of configurable items; the display shows the selected item.
By pressing ∨, you will pass to the next item; by pressing ∧, you will return to the previous item.

By pressing −, you can view the current value of selected item and possibly change it.

The last menu item (FinE) allows storing the carried out changes and going back to the control unit normal operation.
You must exit from programming mode through this menu item if you do not want to lose your configuration.

⚠ **WARNING: in case no operation is carried out for more than one minute, the control unit exits from the programming mode without saving any of your setups and changes, which will get lost.**

By holding down the ∨ or ∧ keys, configuration menu items will scroll fast, until item FinE is viewed.
In this way, you can quickly reach either the top or bottom of the list.



PARAMETER	VALUE	DESCRIPTION	DEFAULT
dir		**Gate direction (the direction you see from the inside)**	dX[
	dX[	The gate opens rightwards	
	SX[	The gate opens leftwards	
P.APP		**Partial opening**	25
	0 - 100	The percentage of the path the gate performs in the case of opening using the Pedestrian Start command	
t.PrE		**Pre-blinking time**	1.0"
	0.5" - 1'00	Before any gate movement, blinker will be activated for t.PrE time, to warn about the incoming motion (adjustable time from 0.5" to 1'00)	
	no	Function deactivated	
t.PCh		**Different closing pre-flashing time**	no
	0.5" - 1'00	If this parameter has a value assigned to it, the control unit will activate pre-flashing prior to closure for the length of time set in this menu (adjustable time from 0.5" to 1'00)	
	no	The closing pre-flashing time corresponds to t.PrE	
Pot		**Motor power**	80
	35 - 100	The displayed value is the percentage of max. motor power	
uEL.A		**Speed during normal opening operation**	18.0
	3.5 - 30.0	This menu allows you to adjust gate speed during normal opening operation. The value shown is in cm/s	
uEL.C		**Speed during normal closing operation**	18.0
	3.5 - 30.0	This menu allows you to adjust gate speed during normal closing operation. The value shown is in cm/s	
uEL.r.A		**Speed during slowdown in opening**	8.0
	3.5 - 30.0	This menu allows you to adjust gate speed during slowdown in opening. The value shown is in cm/s **NOTE**: The maximum value which can be set is equal to the value set in the menu uEL.A	
uEL.r.C		**Speed during slowdown in closing**	8.0
	3.5 - 30.0	This menu allows you to adjust gate speed during slowdown in closing. The value shown is in cm/s **NOTE**: The maximum value which can be set is equal to the value set in the menu uEL.C	
SPUn		**Start off**	Si
	0 - 6	Percentage of overvoltage used to improve the inrush	
rAM		**Starting ramp**	4
	0 - 6	In order not to stress too much the motor, when the motion starts the power is gradually increased, until reached the set value. Higher is the set value, longer the length of time of the ramp, that is the time necessary to reach the value of nominal power.	

PARAMETER	VALUE	DESCRIPTION	DEFAULT
FrEn		**Brake Function**	5
	1 - 10	When a sliding motor is used with a very heavy gate, because of the inertia, the gate does not block immediately when stopped and its motion can last for another 10 cm, compromising the working of the safety devices. This menu allows enabling the brake function thanks to which it is possible to block immediately the gate after a control or the intervention of a safety device. The brake power is proportional to the set value **WARNING: each braking entails a mechanical stress to the components of the motor. We suggest to set the minimum value with which there is a satisfactory stop distance.**	
	0	Function deactivated	
SEn.A		**Enabling the AMPEROMETRIC obstacle sensor**	0.0A
	0.0A - 5.0A	When the power absorbed by the motor exceeds the level set, an alarm goes off in the power unit. If 0.0A is set, the function is disabled. When the sensor intervenes, the gate stops and is operated in the reverse direction for 3 seconds to remove the obstacle. The next start command restarts the movement in the previous direction.	
rA.AP		**Slow down in opening**	15
	0 - 100	This menu allows regulating the percentage of the ride/drive that is carried out at reduced speed during the last opening stretch	
rA.Ch		**Slow down in closing**	15
	0 - 100	This menu allows regulating the percentage of the ride/drive that is carried out at reduced speed during the last closing stretch	
St .AP		**Start command during the opening phase** This menu allows fixing the control unit conduct in case it receives a Start command during the opening phase	PAUS
	PAUS	The gate stops and goes to pause	
	ChiU	The gate immediately starts closing	
	no	The gate go on with the opening phase (command is ignored)	
St .Ch		**Start command during the closing phase** This menu allows fixing the control unit conduct in case it receives a Start command during the closing phase	StoP
	StoP	The gate stops and its cycle is considered as finished	
	APEr	The gate opens again	
St.PA		**Start command during the pause** This menu allows fixing the control unit conduct in case it receives a Start command when the gate is open during its pause phase	ChiU
	ChiU	The gate starts closing	
	no	Command is ignored	
	PAUS	The pause time is reset (Ch.AU)	

PARAMETER	VALUE	DESCRIPTION	DEFAULT
SP.AP		**Pedestrian Start during the partial opening phase** This menu allows fixing the control unit conduct in case it receives a Pedestrian Start command during the partial opening phase. **WARNING: a Start command in any phase of partial opening will cause the total opening; the Start Pedestrian command is always ignored during a total opening**	PAUS
	PAUS	The gate stops and goes to pause	
	Ch.U	The gate immediately starts closing	
	no	The gate goes on with the opening phase (command is ignored)	
Ch.AU		**Automatic closing** In automatic mode, the control unit automatically recloses the gate on expiry of the time limit set in this menu	no
	no	Function deactivated	
	0.5" - 20.0'	The gate recloses after the set time (adjustable time from 0,5" to 20.0')	
Ch.tr		**Closure after passage** During the automatic operation, the pause count down starts from the set up value each time a photocell operates during the pause. If the photocell operates during the opening time, this time will be immediately stored as pause time. This function allows having a fast closing as soon as transit through the gate is completed, therefore, a time shorter than Ch.AU is generally used	no
	no	Function deactivated	
	0.5" - 20.0'	The gate recloses after the set time (adjustable time from 0,5" to 20.0')	
PA.t r		**Pause after transit**	no
	Si	In order to let the gate open for the shortest possible time, it is possible to stop the gate once the passage before the photocells is detected. If the automatic working is enabled, the time of the pause is Ch.tr	
	no	Function deactivated	
LUCi		**Courtesy lights (only SL SMALL 800-230)** This menu allows setting the automatic operating of the courtesy lights during the opening cycle of the gate	t.LUC
	t .LUC	Timed function (from 0 to 20')	1 '00
	no	Function deactivated	
	CiCL	On for the entire duration of the cycle	
AUS		**Auxiliary channel (only SL SMALL 800-230)** This menu allows setting the operating of the relay of the lighting of the courtesy lights by means of a remote control stored on the channel 4 of the receiver	Mon
	t iM	Timed function (from 0 to 20')	
	biSt	Bistable operation	
	Mon	Monostable operation	
rEL.A		**Auxiliary relay function (terminals B3-B4)**	LUCi
	LUCi	Courtesy lights configurable with the LUCi and AUS menu items	
	Ch.U	Indication of closed gate (limit switch sensor active)	
	APEr	Indication of open gate (limit switch sensor active)	

PARAMETER	VALUE	DESCRIPTION	DEFAULT
LP.PA		**Blinker during pause time**	no
	no	Function deactivated	
	Si	The blinker will be on during the pause time too (gate open with automatic closure active)	
Strt		**Activation inputs function** This menu allows selecting input operation modes (see chapter 4.4)	StAn
	StAn	Standard mode	
	no	Start inputs from terminal board are disabled. Radio inputs operate in standard mode StAn	
	in.oU	A command on the START1 input or on CHANNEL 1 of the receiver commands the opening of the gate and the switching on of the green traffic light at entry. A command on the START2 input or on CHANNEL 2 of the receiver commands the opening of the gate and the switching on of the green exit light	
	St.Pr	Start + presence detector or magnetic loop	
	St.Fi	Start + fire sensor	
	AP.Ch	Open/Close command	
	d.MA	Manned operation	
	oroL	Timer mode	
riCE		**Differentiated START modes for remote controls**	no
	no	Receiver channels 1 and 2 copy the function of the START and START2 terminals	
	StAn	Channel 1 controls START, channel 2 controls PEDESTRIAN START	
	AP.Ch	Channel 1 controls OPENING, channel 2 controls CLOSING	
	in.oU	Channel 1 controls OPENING and switching on the green traffic light when entering, channel 2 controls OPENING and switching on the green traffic light when exiting	
StoP		**Stop Input**	no
	ProS	The input STOP stops the gate: pressing the command START the gate continues the motion	
	inuE	The command STOP stops the gate: at the next START the gate starts moving in the opposite direction	
Fot1		**Photocell 1 input** This menu allows enabling the input for type 1 photocells, that is to say, photocells active both during the opening and closing phase	no
	no	Input disabled (ignored by the control unit)	
	AP.Ch	Input enabled	
Fot2		**Photocell 2 input** This menu allows enabling the input for type 2 photocells, that is to say, photocells non active during the opening phase	CFCh
	CFCh	Input enabled even at standstill gate too: the opening movement does not start if photocell is interrupte	
	Ch	Input enabled for the closing phase only **WARNING: if you select this option, you must disable photocell test**	
	no	Input disabled (ignored by the control unit)	

PARAMETER	VALUE	DESCRIPTION	DEFAULT
Ft.tE		**Test of the photocells**	no
	no	Function deactivated	
	Si	In order to achieve a safer operation for the user, the unit performs a photocells operational test, before a normal working cycle. If no operational faults are found, the gate starts moving. Otherwise, it will stand still and the flashing light will stay onfor 5 sec. The whole test cycle lasts less than one second.	
CoS1		**Safety ribbon 1 input** This menu allows enabling the input for type 1 safety ribbon, that is to say, fixed ribbons	no
	no	Input disabled (ignored by the control unit)	
	AP	Input enabled during the opening and disabled during the closure	
	APCh	Input enabled in opening and closure	
	StoP	Activating the input during both opening and closing causes the gate to stop immediately.	
CoS2		**Safety ribbon 2 input** This menu allows enabling the input for type 2 safety ribbon, that is to say mobile ribbons	no
	no	Input disabled (ignored by the control unit)	
	APCh	Input enabled in opening and closure	
	Ch	Input enabled during closure and disabled during opening	
	StoP	Activating the input during both opening and closing causes the gate to stop immediately.	
Co.tE		**Test of the safety edges** This menu allows setting the method of control of the safety edges working	no
	no	Test disabled	
	rESi	Test enabled for conductive rubber safety edges	
	Foto	Test enabled for optical safety edges	
i.Adi		**Enabling the ADI device** This menu makes it possible to enable operation of the device connected to the ADI connector. **PLEASE NOTE:** selecting Si and pressing MENU accesses the configuration menu for the device connected to the ADI connector. This menu is managed by the device itself and is different for each device. Please refer to the manual for the device. If the Si option is selected, but no device is connected, the display will show a series of dotted lines. Exiting the ADI device configuration menu returns to the i.Adi option	no
	no	Interface disabled, any signals will be ignored	
	Si	Interface enabled	
FinE		**End of Programming** This menu allows to finish the programming saving the modified data into memory	no
	no	Do not quit the programming	
	Si	End of programming	

14 - OPERATION DEFECTS

This paragraph shows some possible operation defects, along with their cause and applicable remedy.

Some anomalies are signalled using a message on the display, others with flashing signs or the leds assembled on the control unit.

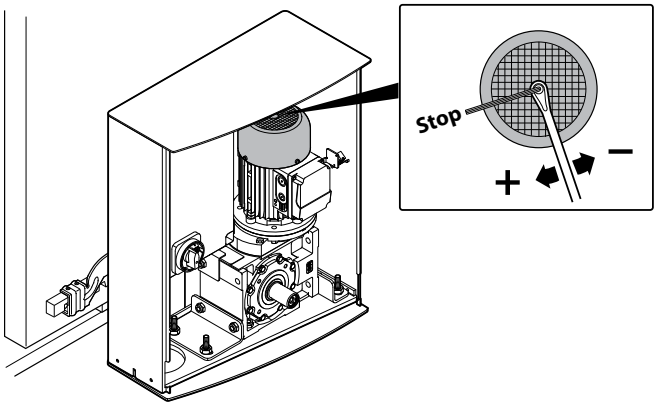
DISPLAYING	DESCRIPTION	SOLUTION
STATUS led does not switch on	It means that there is no voltage on control unit card.	**1.** Before acting on the control unit, disconnect through the disconnecting switch on the power line and remove the power supply terminal. **2.** Be sure that there is no voltage break upstream the control unit. **3.** Check whether the fuse is burnt-out, if so replace it with same value.
The STATUS LED lights up red and the display shows the control panel	It means that there is an overload on accessory power supply.	**1.** Remove the extractable part containing terminals **M1 - M12** . STATUS led will switch off. **2.** Remove the overload cause. **3.** Reinsert the terminal board extractable part and check that this led is not on again.
The STATUS LED lights up red and the display is off	The control panel is faulty	Contact the V2 technical assistance service to send the control unit for repair
Too long pre-blinking	When a Start command is given and the blinker switches on immediately but the gate is late in opening	It means that the setup cycle count down expired and the control unit shows that service is required
The display shows Err2	When a start command is given the gate does not open. It means that the inverter board reports an anomaly.	If the motor has been used intensively, the motor driver may have overheated. Wait for it to cool and try again.
The display shows Err3	When a start command is given the gate won't open. It means that the photocell test failed.	**1.** Be sure that no obstacle interrupted the photocell beam when the Start command was given. **2.** Be sure that photocells, as enabled by their relevant menus, have been installed actually. **3.** If you have photocells 2, be sure that Fot2 menu item is on CF.Ch. **4.** Be sure that photocells are powered and working: interrupt the ray and check that the photocell segment on the display changes position.
The display shows Err4	When a Start command is given and the gate does not open	This anomaly can occur when in one of the following conditions: **1.** If a START command is sent with the motor released. **2.** During the self-learning cycle if there are any problems with the range limits. If the magnets are installed correctly, it means that the limit switch sensor is damaged or the cabling connecting the sensor to the central control unit is broken/damaged. Change the end of stroke sensor or the broken wiring. **3.** During normal operation. If the error persists send the control unit to V2 S.p.A. for repair.

DISPLAYING	DESCRIPTION	SOLUTION
The display shows Err5	When a start command is given the gate won't open. It means that the test of the safety edges failed.	**1.** Make sure that the menu relative to the test of the facets for cables (Co.tE) is configured correctly. **2.** Make sure that the safety edges enabled by menu are actually installed.
The display shows Err6	When a start command is given the gate won't open. It means that there are communication problems with the inverter board	If the problem persists, the control unit must be sent to V2 SpA for repair.
The display shows Err7	Encoder error	Check the connection of the encoder
The display shows Err8	When executing a self-learning function the control is refused. It means that the setting of the control unit is not compatible with the requested function.	1. Check the Start inputs are enabled in standard mode (Strt menu set on StAn). 2. Check the ADI interface is disabled (i.Adi menu set to no).
The display shows Err9	It means that programming was locked by means of the programming lock key CL1+ (code 161213).	To change the settings it is necessary to insert in the connector of the ADI interface the same key used to activate the programming lock, and unlock the device.
The display shows Er10	When a start command is given the gate won't open. This means that the ADI module function test failed.	**1.** Check the ADI module is correctly inserted **2.** Check the ADI module is not damaged and working properly
The display shows Er11	When a Start command is given and the gate does not open (or does a partial opening) . This means the motor overheating protection has tripped.	The system will start working again as soon as the motor has cooled.
The display shows Er12	When a start command is given the gate does not open. It means that the inverter module is too hot to ensure safe operation.	The system will return to normal operation as soon as the module has cooled down.
Il diplay visualizza Er13	Il circuito di autodiagnosi ha rilevato un malfunzionamento che impedisce il funzionamento sicuro dell'automazione	Contattare il servizio di assistenza tecnica V2 per inviare la centrale in riparazione
Il diplay visualizza Er14	Il circuito di autodiagnosi ha rilevato un errore nella tabella dei parametri di configurazione	Entrare nel menù di configurazione, verificare attentamente tutti i parametri e correggere gli eventuali errori. Se l'errore persiste contattare il servizio di assistenza tecnica V2 per inviare la centrale in riparazione
Il diplay visualizza Er15	The duty cycle limit has been exceeded	The control unit will return to normal operation after a forced pause. In this situation it is still possible to activate the automation in EMERGENCY DEAD-MAN OPERATION mode (chapter 10)
Il diplay visualizza Er20	Incompatibility with hardware. The firmware cannot recognize the control panel	Contattare il servizio di assistenza tecnica V2 per inviare la centrale in riparazione

15 - TESTING AND COMMISSIONING

The testing and commissioning phases are the most important when creating an automated system in order to ensure maximum safety. The testing procedure can also be performed as a periodic check of the automation devices. These phases must be performed by qualified and experienced personnel who must take charge of establishing the tests necessary to verify the solutions adopted in respect of risks and verify the compliance of the system with applicable standards, legislation and regulations, in particular all requirements of the standard EN 12445 which establishes the test methods for checking automated systems for doors and gates. The additional devices must undergo specific testing, both in terms of their functions and in terms of their interaction with the control unit; therefore, you need to refer to the instruction manuals for the individual devices.

8



15.1 - TESTING

The sequence of steps to be performed when running the testing phase, as described below, refers to a typical system:

1 Check that all the instructions in the "Installation warnings" chapter have been rigorously complied with.

2 Release the motor. Check that the gate can be manually manoeuvred with a force no greater than 225N.

3 Lock the motor.

4 Using the control devices (transmitter, push button, key switch, etc.), test the Opening, Closing and Stopping of the gate, ensuring that the movement of the gate leaves corresponds to specifications. Test several times to assess the movement of the gate and check for any defects in assembly or adjustment and for any particular points of friction.

5 Check, one by one, that all the safety devices featured in the system (photocells, sensitive edges, etc.) work properly.

6 If the dangerous situations caused by the movement of the gate leaves have been safeguarded against by limiting the impact force, the impact force must be measured according to the EN 12445 standard.

7 Check that the stopping distance of the gate is 2-3 cm, otherwise adjust the mechanical brake as follows (fig. 8):

a. Give the nut on the motor shaft a half turn in a clockwise direction;

b. If the half turn isn't enough, turn the nut a little bit more;

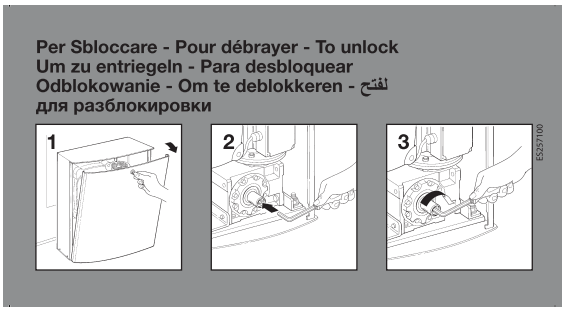
c. Be careful not to over tighten the nut because it could completely block the electric motor.

⚠ **Before adjusting the mechanical brake, the power supply must be turned off placing the main switch on the control unit in the "OFF" position.**

15.2 - COMMISSIONING

Commissioning can only be performed after obtaining positive results in all the test phases run on the control unit and the other devices (paragraph 3.1).
It is not permissible to execute partial commissioning or to enable use of the system in "makeshift" conditions.

1. Prepare and store the technical documentation for the automated system for at least 10 years. This must include at least: an assembly drawing of the automated system, a wiring diagram, an analysis of hazards and solutions adopted, a manufacturer's declaration of conformity of all the devices installed (for the control unit, use the annexed CE declaration of conformity); a copy of the automation system instruction manual and maintenance schedule.
2. Post a label on the gate providing at least the following data: type of automated system, name and address of manufacturer (person responsible for the "commissioning"), serial number, year of manufacture and "CE" marking.
3. Post a permanent label or sign near the gate detailing the operations for releasing the system and its manual operation
4. Post a permanent label or sign on the gate containing this picture (min. height 60 mm).



5. Prepare the declaration of conformity for the automation system and hand it to the owner.
6. Prepare the "Instructions and warnings for the use of the automation system" and hand it to the owner.
7. Prepare the maintenance schedule for the automation system and hand it to the owner; it must include all the instructions regarding maintenance of the individual devices.

16 - MAINTENANCE

Maintenance should be performed in full compliance with the safety instructions described in this manual and in accordance with current legal and regulatory provisions.
The recommended interval between each maintenance operation is six months, the checks involved should at least relate to:

- the perfect efficiency of all warning devices
- the perfect efficiency of all safety devices
- measurement of the gate operating forces
- the lubrication of mechanical parts on the automation device (where necessary)
- the state of wear of the mechanical parts on the automation device
- the state of wear of the electrical cables on the electromechanical actuators

The result of each check should be recorded in a gate maintenance log.



17 - DISPOSAL OF THE PRODUCT

As for the installation operations, even at the end of this product's life span, the dismantling operations must be carried out by qualified experts.

This product is made up of various types of materials: some can be recycled while others need to be disposed of. Find out about the recycling or disposal systems envisaged by your local regulations for this product category.

Important! – Parts of the product could contain pollutants or hazardous substances which, if released into the environment, could cause harmful effects to the environment itself as well as to human health.
As indicated by the symbol opposite, throwing away this product as domestic waste is strictly forbidden. So dispose of it as differentiated waste, in accordance with your local regulations, or return the product to the retailer when you purchase a new equivalent product.

Important! – the local applicable regulations may envisage heavy sanctions in the event of illegal disposal of this product.