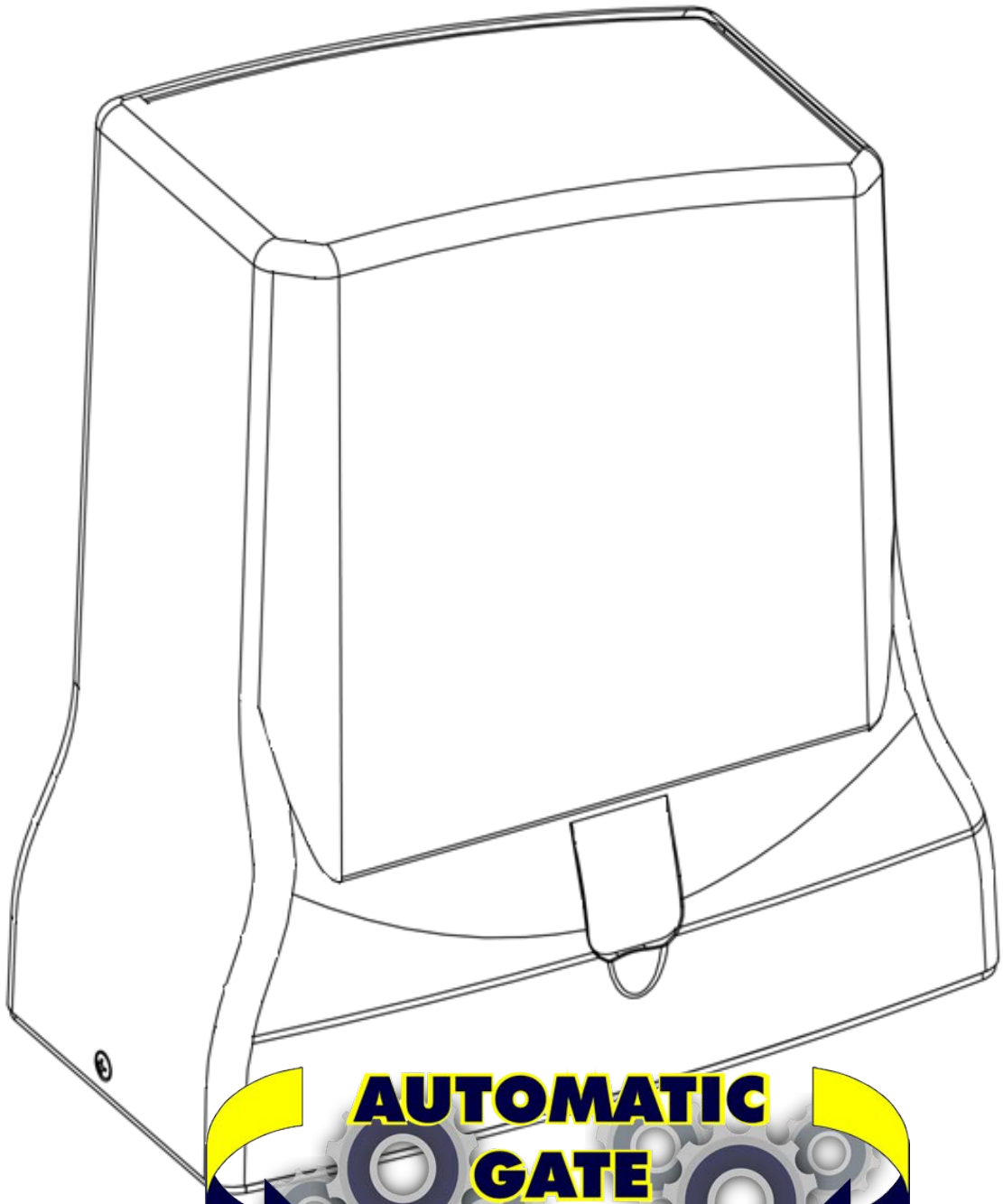
SISTEMI AUTOMATICI DI APERTURA

GR6-8EU0

MOTOR FOR SLIDING GATES



G.R. SISTEMI AUTOMATICI DI APERTURA SRL

INSTALLATION MANUAL

Our compliments for your excellent choice. The GR6-8 electro-mechanical gear motor has been produced for reliability and high quality. This Manual will offer information you may need to install your gear motor assuring long-lasting performance and to safeguard your safety.
HOWEVER CAUTION IS UNQUESTIONABLY INDISPENSABLE AND NOTHING IS BETTER THAN PREVENTING ACCIDENTS. GR products have been made to conform with rules and laws in force at time of manufacture.

⚠ This manual is designed exclusively for the specialized installation expert in the criteria of construction and equipment to assist in the protection against accidents in the installation and use of the gate; door and automation of such gates (adhere to the rules and laws in force).

⚠ On completion the installer should issue to the end consumer an instruction manual according to EN 12635.

⚠ Before proceeding with the installation the installer must provide an analysis of the identification and management of risks as per the standards EN 12453 and EN 12445.

⚠ All wiring of the various external electrical components connected to the automation (e.g. Photocells, flashing lights, keypads etc) must be carried out according to EN 60204-1 and the amendments made of the point 5.2.2 of EN 12453.

⚠ It is prohibited to do any repair or adjustment of the equipment if you have not taken all necessary precautions to avoid possible accidents (example: power supply disconnected, engine block). All mechanisms in motion must be equipped with appropriate protections.

⚠ The mains power line must be protected for maximum current in locked rotor condition as per government electrical laws.

⚠ Install the gear motor on gates that conform to EN 12604.

⚠ Perform the measure of strength developed by the gear motor and take the appropriate steps as per EN 12445.

⚠ Positioning photocells: These safety devices must be installed at a height not exceeding 70cm from the ground and at a distance from the floor movement of the door of no more than 20cm. Their proper functioning of the photocells must be verified at the end of installation according to Section 7.2.1 of EN12445.

⚠ Keep the activation controls of automation out of reach of children. The controls should be installed at a minimum 1.5m height above the ground and outside the range of actions of moving parts such as the gate.

⚠ All activation actions must be executed only at points from where the automation is fully visible.

⚠ Operate the remote only in view of automation.

⚠ Store carefully this manual in a suitable place known to all interested people.

⚠ Any unauthorized and arbitrary modification made to this product, releases the company GR SISTEMI AUTOMATICI DI APERTURA Srl and from any liability resulting from damage or injury to things, people or animals.

⚠ The non-observance of regulations and of safety standards here listed releases the company GR SISTEMI AUTOMATICI DI APERTURA Srl from any liability resulting from damage or injury to things, people or animals.

⚠ The automation must be coupled to a control board equipped with torque regulation that provides an anti crushing safety as described in EN 12453 - EN 12445

CONFORMITY DECLARATION:

It's in accordance with Machine Directive 39/89/CE and following modify.
It's in accordance with the following directive CE:
Electromagnetic compatibility Directive 89/336/CEE and following modify.
Low tension Directive 73/23/CEE and following modify.
Have been applied the following harmonized norms:
EN292/1/2, EN 294, EN60335-1, UNI EN 12453, and what applicable of the EN12445-2000.

Castiglione d/St. 05-10-2020

DISMANTLING / REINSTALLING

This product falls within the scope of the Directive 2012/19 / EU concerning the management of waste electrical and electronic equipment (WEEE). The appliance must not be disposed of with domestic waste as it is made of different materials that can be recycled at the appropriate facilities. Inquire through the municipal authority regarding the location of the ecological platforms to receive the product for disposal and its subsequent correct recycling. Furthermore, it should be remembered that, upon purchase of an equivalent appliance, the distributor is obliged to collect the product for disposal free of charge. The product is not potentially dangerous for human health and the environment, not containing harmful substances, but if abandoned in the environment negatively impacts on the ecosystem. Read the instructions carefully before using the appliance for the first time. It is recommended that you do not use the product for any purpose other than that for which it was intended, there being a danger of electric shock if used improperly.

The crossed-out bin symbol, on the label on the appliance, indicates the compliance of this product with the regulations regarding waste electrical and electronic equipment. Abandonment in the environment of the equipment or illegal disposal of the equipment is punishable by law.

To dismantle or reinstall the automation elsewhere, you need to:
1 - Disconnect the power supply and disconnect the electrical system.
2 - Remove the control panel and all the components of the installation.
In the event that some components are damaged or unable to be removed, replace them.

SAFETY RULES

During the installation and the use of the automation, pay attention to the following safety rules:

⚠ Distance security!

⚠ Mechanisms moving!

⚠ Do not install automation in an environment saturated with explosive mixtures!

⚠ Electric Shock!

⚠ Use gloves!

⚠ Use welding glasses!

⚠ Maintain ear protection!

USE OF THE AUTOMATION

The gearmotor GR6-8 was designed and built for the opening of gates with weight max. 800kg. G.R. Srl assumes no responsibility for a purpose other than that provided by gearmotor GR6-8. Since automation can be put into motion in view by button or remotely by remote control, it is essential to check frequently the perfect efficiency of all safety devices. It is advisable to check periodically (every six months) the regulation of electronic friction of which must be equipped the electronic control board.

TECHNICAL DATA

	GR6 12V	***GR8 12V***
MAX. weight of the gate	600Kg	800Kg
Power supply	12Vdc	12Vdc
Nominal power	190W	350W
Absorption	2.6A	2,5A
RPM	1400	1400
Torque	13,4Nm	21,2Nm
Gate speed	10,2m/min	10,2m/min
Thermal protection	150°C	150°C
Working temp.	-20°C +60°C	-20°C +60°C
Lubrication	GREASE	GREASE
Protection IP	IP44	IP44
Use frequency	65%	65%

PRELIMINARY CHECKS

– Read the instructions in the manual carefully.
– Check that the gate is perfectly horizontal
– Check that it slides smoothly and without friction points
– Check that there is an adequate base for fixing the motor, otherwise prepare it
– Check that the electrical system complies with the characteristics required by the gearmotor

⚠ The gearmotor is delivered UNLOCKED

– Remove the motor from the box, check that it is not damaged. Unscrew the screws A and B and remove the cover FIG.1

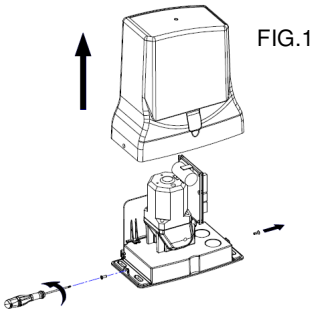
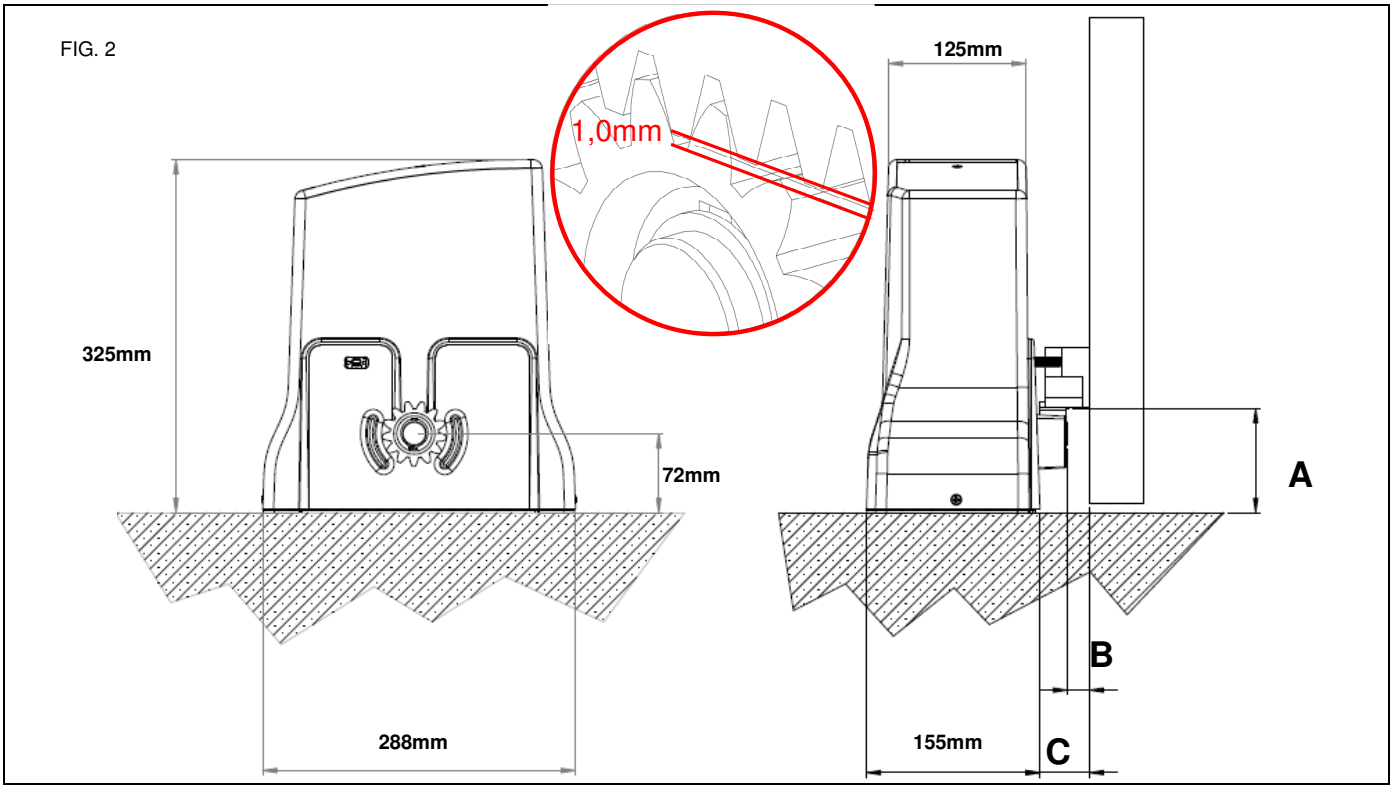


FIG.1

INSTALLATION



A = 105mm = VERTICAL DISTANCE BETWEEN THE TEETH OF THE RACK AND THE GROUND

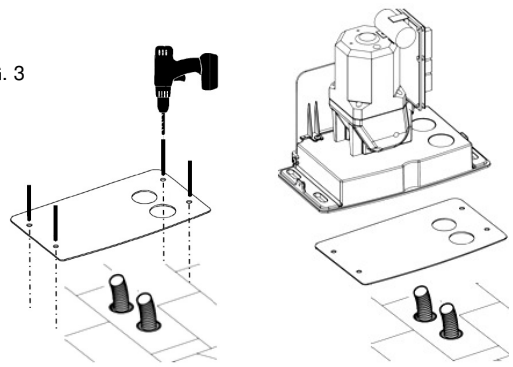
B = 20mm= HORIZONTAL DISTANCE BETWEEN THE DRIVE WHEEL AND THE GATE

C = 55mm = HORIZONTAL DISTANCE BETWEEN THE BASE OF THE MOTOR AND THE GATE

FOUNDATION PLATE (OPTIONAL)

If the base has yet to be prepared and the installation of the motor is not immediate, it is possible to cement the foundation plate (NOT INCLUDED) following the installation dimensions FIG.2
– Position the foundation plate as shown in FIG. 3

FIG. 3



GEARMOTOR POSITIONING

If there is a concrete base already prepared, it is possible to install the motor, without using the foundation plate, following the installation dimensions in FIG. 2. In this case, suitable M10 screw anchors must be used
– Position the motor so that the cable outlets correspond to the appropriate holes on the motor body. FIG. 4

– Secure the motor to the ground with suitable anchors, using the slots provided FIG. 5.
Or if the foundation plate is installed, fix the motor to the 4 log bolts provided as shown in FIG.3.

FIG.4

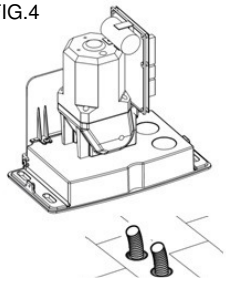
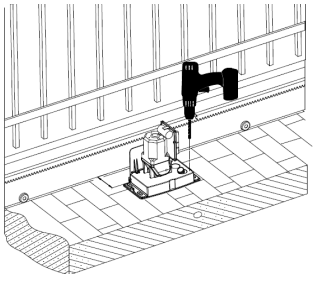


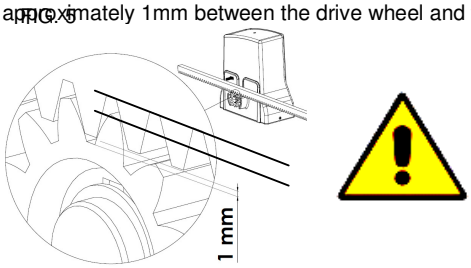
FIG.5



INSTALLING THE RACK

If the rack is already installed, check that there is a space of approximately 1mm between the drive wheel and the rack FIG.5,

FIG.5

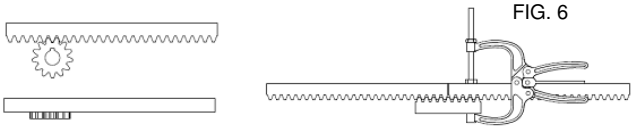


if the rack is not installed, proceed as follows:
– Take the first piece of rack and position it on the motor sprocket making sure that at the end of the installation there is always 1mm of space (if necessary use temporary shims under the motor). Slide it to the point indicated in FIG. 5

– Weld or screw the first pin or spacer to the gate (depending on the type of rack).

– Apply all the other elements of the rack so that they are perfectly joined and aligned with the first one. Use pliers and a piece of rack for perfect alignment of one element with the other. See FIG. 6

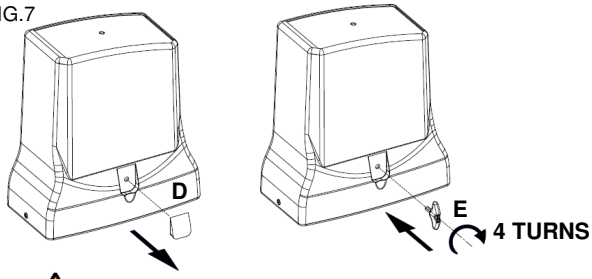
FIG. 6



EMERGENCY RELEASE

To unlock the motor proceed as follows:
– remove the cap D
– Insert the supplied key E and turn CLOCKWISE for 4 turns FIG.7
– To overturn the motor turn ANTICLOCKWISE for 4 turns

FIG.7



CAUTION DO NOT RE-LOCK THE MOTOR WHILE IT'S RUNNING

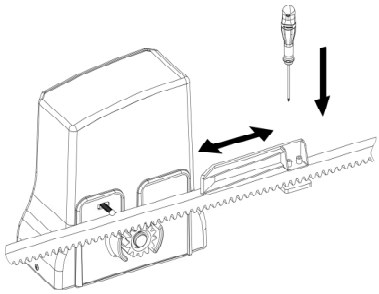
FINAL OPERATIONS

Once the rack and motor have been fixed, release the motor see FIG.8, and move the gate to check that it slides freely and effortlessly.

ATTENTION vérifier qu'il ne "repose" pas sur la roue motrice du moteur. Dans ce cas, réglez la crémaillère pour laisser environ 1 mm d'espace entre le pignon du moteur et la crémaillère

– Install the limit switch cams on the rack FIG. 8 without fixing them in a definitive way, in order to be able to adjust them in the optimal position when programming the control unit.

FIG.8



CAUTION The limit switch cams are used to operate the limit switches of the motor which, by means of the control unit, interrupt the movement of the gate during opening and closing. They must be positioned at the ends of the rack taking into account any inertia and the delay in stopping the gate with respect to the operation of the limit switches.

– Proceed with the electrical connections, program the control unit, carry out the final test and reinstall the cover cards.

SCHEDULED MAINTENANCE WARNINGS

Before any maintenance operation, disconnect the power using the main switch

The equipment must be maintained in such a way as to maintain the conditions that guarantee safety and correct operation

Always use original spare parts

Do not carry out any interventions that modify the machine

The modified machine needs a new CE mark

The adjustment of the function of the automation must be carried out by specialized personnel, in compliance with the relevant regulations. During these operations the presence of two operators is expected

SCHEDULED MAINTENANCE - OPERATIONS

DESCRIPTION	FREQUENCY	ENTRUSTED	OPERATION
Photocells cleaning	Monthly	Operator	Clean with damp cloth
Control of the gate supports of the fall arrest devices, the limit stops, the rack, the sliding guide and the sliding of the gate	According to necessity	Operator	Check the integrity of all items, state of welds and corrosion. Unhook the motor and check the friction points of the gate and the distance between the pinion and rack (1.0mm).
Control of the sensitivity of the electronic clutch (torque regulation) of the control unit	Semiannual	Technician	Check the torque adjustment as indicated in the EN 12453 - EN 12445 standard
Control of the IP protection	Semiannual	Technician	Check that there are no traces of moisture or water inside the electrical enclosures
Monitoring current dispersion	Annual	Technician	Verify that the dispersion of current is less than 7.5 A
Control of signals	Semiannual	Operator	Verify that the safety warning signage is complete and intact

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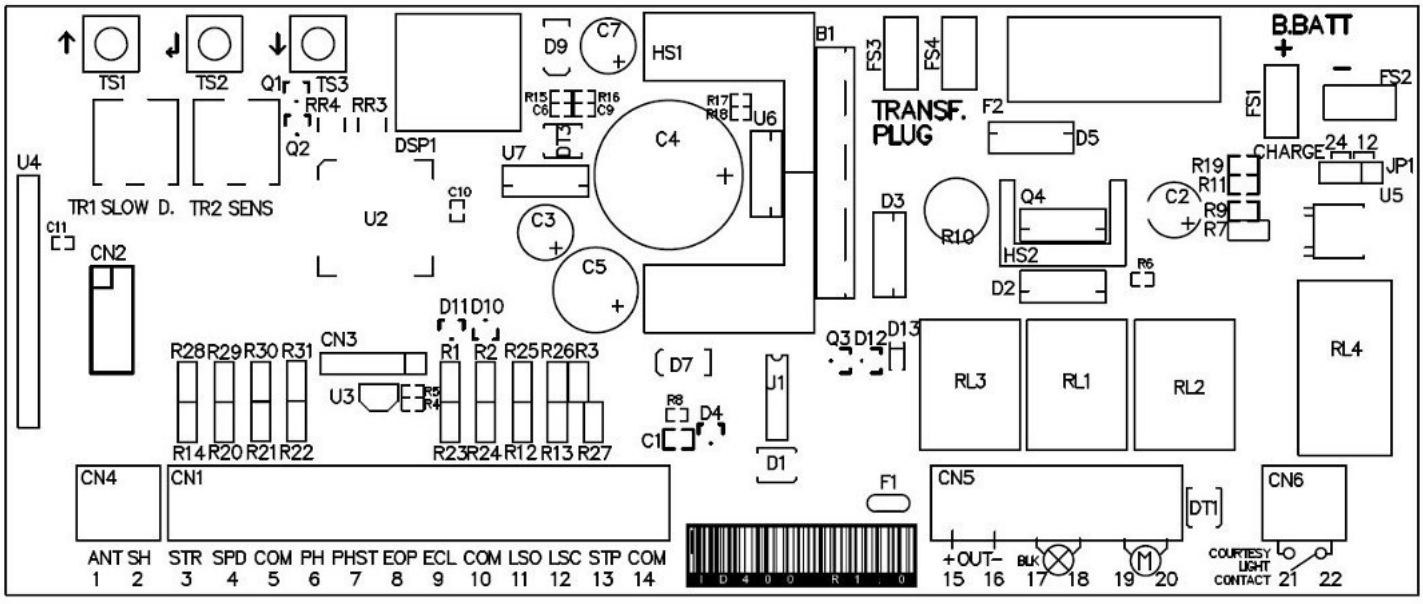
ID-400

GB Instructions Manual

Rev. 1



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Important: Read carefully this manual before the installation. This manual is integral part of your product, keep it for reference.

Warnings: First of all verify that this product is suitable for the installation. Read carefully technical characteristic before the installation.
Installation of this control unit must be properly done by qualified installers, following rules and regulations of installation country.
It's mandatory do periodic maintenance each 6 month. Maintenance or repairing must be done by qualified Technicians. Turn power off before maintenance or repairing.
This device is intended for gate automation, any other applications is strongly advised.
Not respecting of rules may cause serious damage to peoples, animals, things. Manufacturer discharges all responsibility for missed respect of rules.
Don't let this control unit unattended or where children can reach

Preliminary checking: Before to install this control unit, verify that all the connected devices respect the technical characteristics mentioned in the table which follows. Verify that a working and suitable life switch is installed upline the installation. Verify that cables composing the installation, are suitable for it.

Technical characteristics

Power Supply	12-20Vac/100-200VA +/-10%
Max. Current out (14-15)	250mA
Embedded Battery charger	12/24V 100mA
Max motor current	8A (200VA transformer)
Max flashing light current	1A
Operating temperature range	-5 +60°C
Backup battery	(2x) 12V 4.5Ah / (1x) 12V 7Ah

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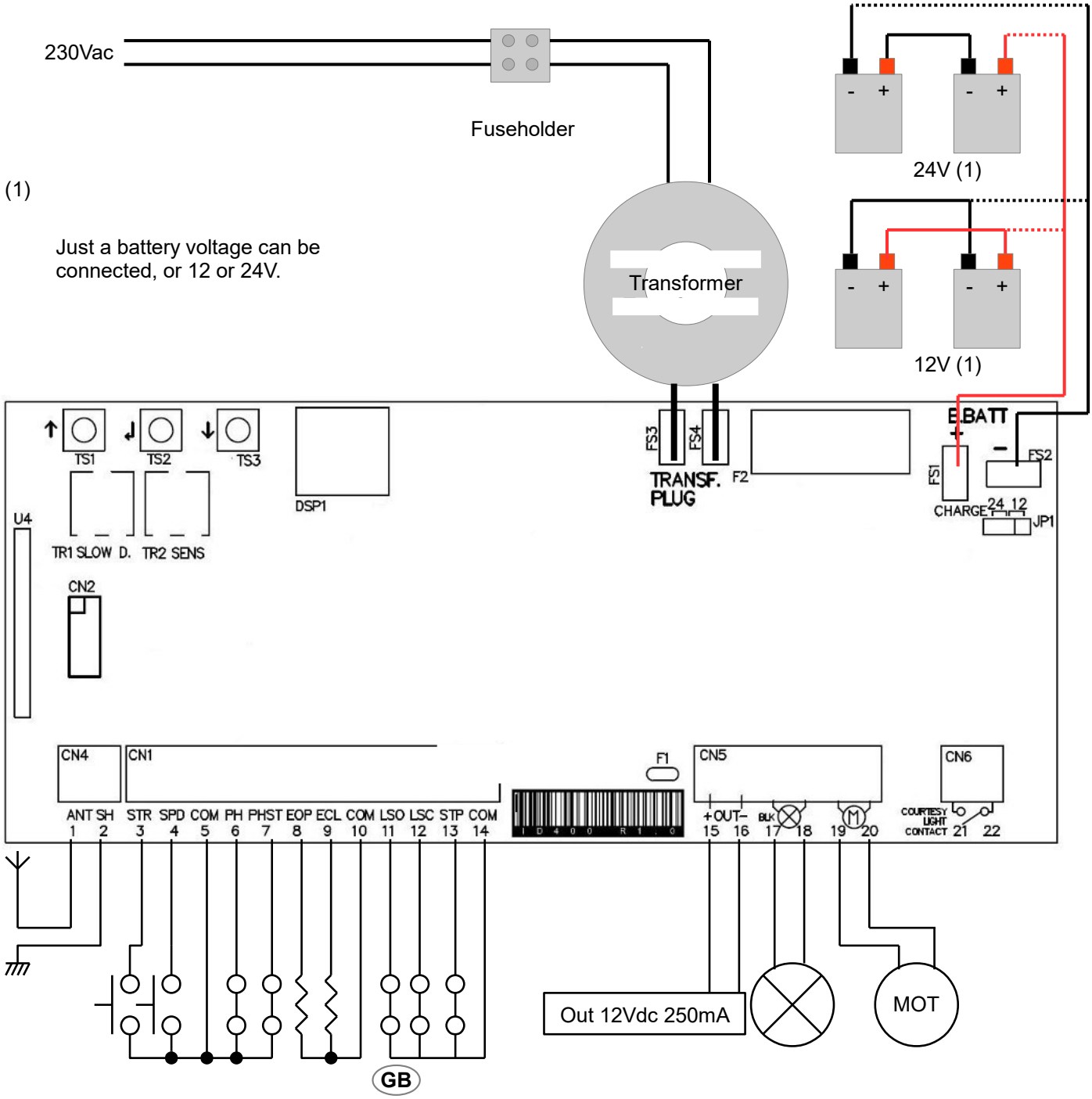
Wiring
Main functions



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1 Antenna

2 Antenna's shield

3 Start input (NO)
It completely opens the gate

4 Pedestrian start in. (NO)
It opens just 1 meter

5 Common

6 Photocell input (NC)
During pause: Reloads pause
During closing: Reverses motors direction

7	Photostop input (NC) *During pause: Reloads pause* *During closing: Reverses motors direction* *During opening: stops the motors and waits till contact returns close.*
8	Analog opening edge input (8K2 ohm) *Waiting an opening command: inhibits opening* *During opening: reverses motor direction for 1 second.* *If not used left unconnected.*
9	Analog closing edge input (8K2 ohm) *It works as opening edge, but for closing.*
10	Common
11-12	Limit switches input (NC). *They can be inverted together with gate direction (see advanced menu).* *Left open in case limit switches aren't used.*
13	Stop input (NC) *It always stops motors and blocks control unit activity.*
14	Common
15-16	Power supply output 12Vdc 250mA
17-18	Flashing light output 12/24V 1A. *It flashes fast opening and slow closing. If mains fails, it flashes very slow (4 sec.)*
19-20	Output motor 8A
21-22	Courtesy light dry contact.
TR1	Slowing down speed trimmer
TR2	Obstacle detection sensibility trimmer
TS1-TS3	Buttons up/down
TS2	Enter button
DSP	Display
FS3-FS4	Transformer input 12-20Vac / 100-200VA
F2	Battery fuse 10A Fast
FS1-FS2	Backup battery input 12/24Vdc
JP1	Backup battery voltage selector 12/24V

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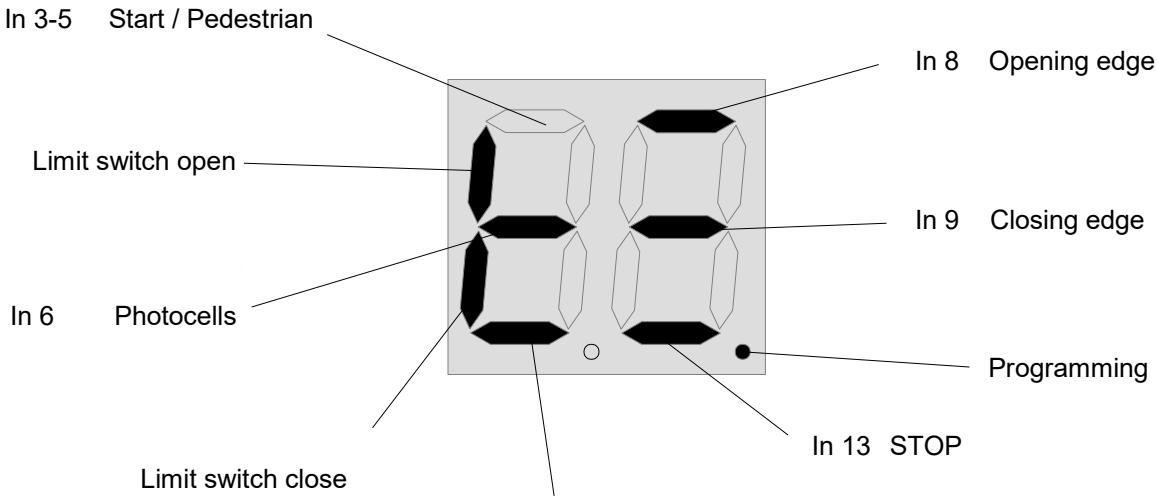
Input status

When the control unit is waiting for an opening or closing cycle, or when it's in pause, status of inputs is displayed as following diagram.



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Quick installation

To program quickly the working times, open the gate , then push TS1 (*up)* until you read Au on the display. The control unit will do several tests and it will learn working times and limit switches installed as well as the gate direction. When the procedure is complete the blinker goes off.

Do not try to do this during setup. You must program through basic programming.

Auto Learning transmitters:

It's possible to learn transmitters quickly without using the base menu. To insert a new transmitter transmit 3 times with the new remote, making at least 1 second pause between each transmission. Then transmit 3 times with a transmitter already in memory and then once with the new. When programmation is done, the blinker flash once. **Attention**: function must be enabled, refer to “advanced menu”.

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Trimmer regulations

The slow down speed trimmer regulates the slow down speed. Do not set speed to low (less than 6 cm/sec on the wing edge) to avoid that gate get problems in too cold conditions.

The obstacle sensibility trimmer fine tunes the obstacle detection level learned by the control unit during working times programming. This fine regulation must be do after working times learning.
Normally the trimmer goes in the center, in this position should be possible to respect rules in most of installations. If it's need to resolve problems related to norms or to environmental situations (ex. strong wind) is it possible to regulate this trimmer increasing or decreasing sensibility.

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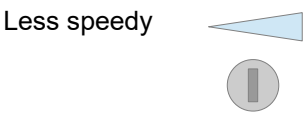
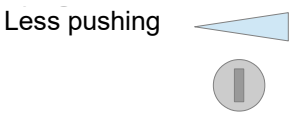


TR1

Slow down speed



TR2

Obstacle sensibility

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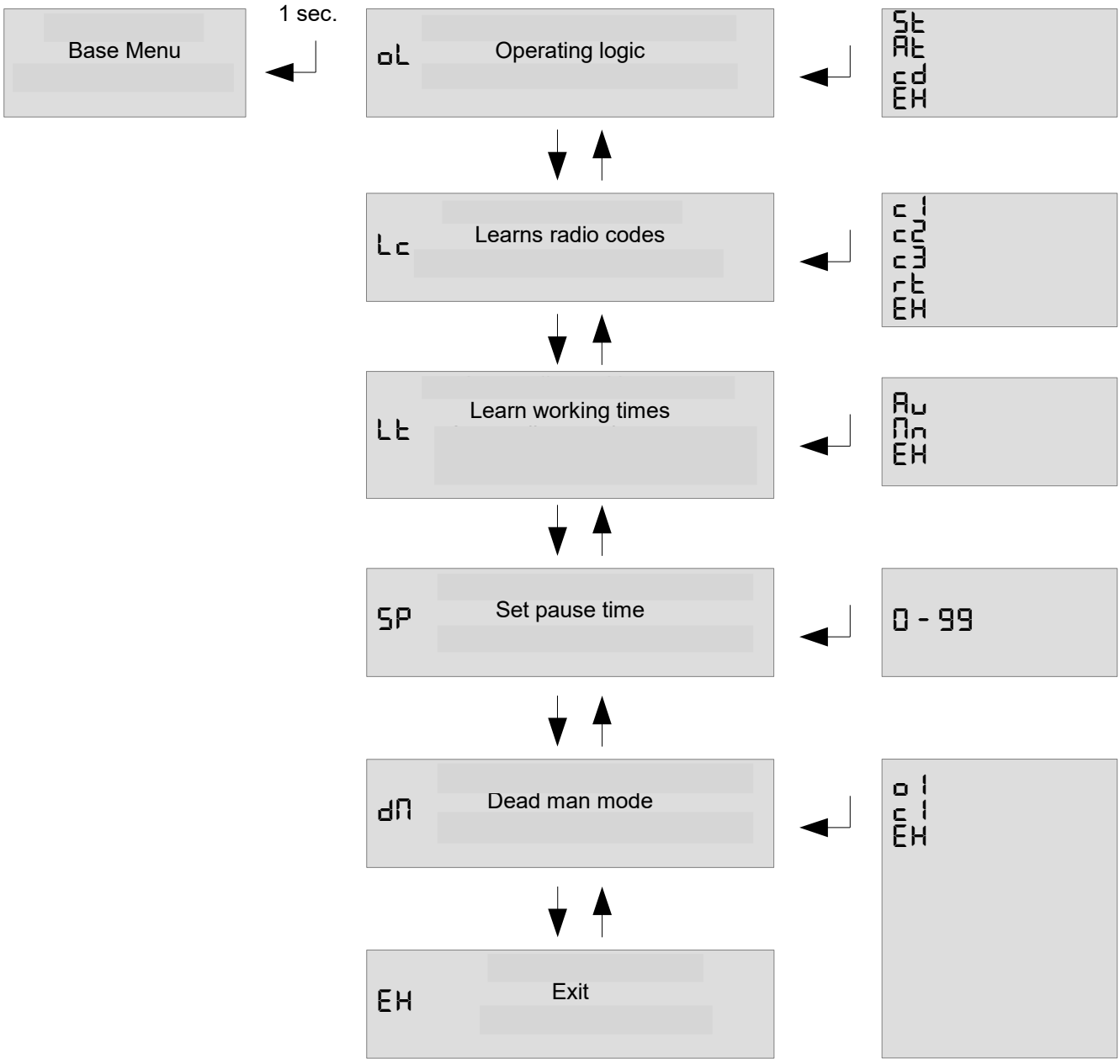
Board Programming

Base Menu

Push TS2 (*enter*) for at least 1 second to enter base menu.
oL is on the display.
With TS1 and TS2 (*up/down)* it is possible to select other functions of this menu.
To exit this menu select EH or push up and down together.
After 2 minutes without actions, the control unit exits itself from this menu.

Press and release TS2. Any more than one second and you enter advanced programming.

Base menu map



Menu di base
Operating logic oL:
Select oL and push enter, with *up/down* select wanted logic between following end push once *enter*. Check tab operating logics for further informations.
St: Step by step logic.
At: Automatic closing with stop funcion.
cd: Automatic closing for condominium function.
To exit this menu select EH or push *up/down* together.

Lc Learning / removing transmitters code:
Select learning code function Lc and push enter, than select one of following functions with *up/down*.
c 1: learn a start code
c2: learn a pedestrian code
c3: learn a courtesy light code
rt: Delete all transmitters in memory.
See tab operating logics for further informations.
Once selected the channel transmitt the code, on the display is show "oK" for a while if operation is done.
To replace the channel of a code, just select desired channel and transmitt once the same code.
To delete just one code, select rt and transmitt the code to be removed, on the display is show "oK" for a while if operation is done.
To delete all codes, select rt and push *enter*, then confirm with YS.
To exit this menu select EH or push *up/down* together.

Once you have selected C1 or C2 etc. do not hit "Enter". Simply press the required button on your remote transmitter.

Lt learn working time:
Attention: before to start leaning procedure, the gate must be open to do automatic procedure, otherwise must be closed to do the manual procedure. Use "dead man" function to put the gate in the right position.
Is it possible to program working time automatically, please refer to "**Quick installation**".
Select Lt in the base menu and push *enter*, after select the learning mode with *up/down*.
Au: Automatic learning procedure.
Mn: Manual learning procedure.
To exit this menu select EH or push *up/down* together.

Au Automatic procedure for working time learning:
Attention: in this procedure all safety inputs are disabled.
The wings close themselves, in the meanwhile all the working times and values for obstacle detection sensor are learned. If limit switches are connected (coherent with motor direction) the board learn the direction of the gate. If analogue edges are connected, they are automatically enabled.

Mn Manual procedure for working time learning:
Attention: to do this procedure prepare at least a transmitter into memory. In this procedure all safety inputs are disabled.
Gate starts opening, in this phase it's possible to set the slowing down speed with the trimmer 2. If limit switches aren't installed, push enter button or transmit with remote once gate is open. The control unit makes some test of motor consumption to set the threshold for the obstacle detection sensor.
Once the test is finish, you can see M 1 on the display.
In the phase which follows, *enter* button or a memorized code control following sequence: start closing gate, start slowing down, stop the motor. If limit switches are installed, the gate stops itself when completely closed.

SP Set pause time:
Use *up/down* to set the pause time between 0 and 99 seconds. Push *enter* to confirm. To exit without modifications push together *up* and *down*.
Attention, setting a pause time doesn't enables automatic closing, please refer to chapter "oL operating logic" to enable this function.

dM Dead man mode:
Selecting this menu it's possible to control each motor in dead man mode. Push *up* and *down* to select one of following item:
o 1 Open motor
c 1 Close motor
EH Exit
Keep pushed *enter* to start the selected motor in dead man mode.

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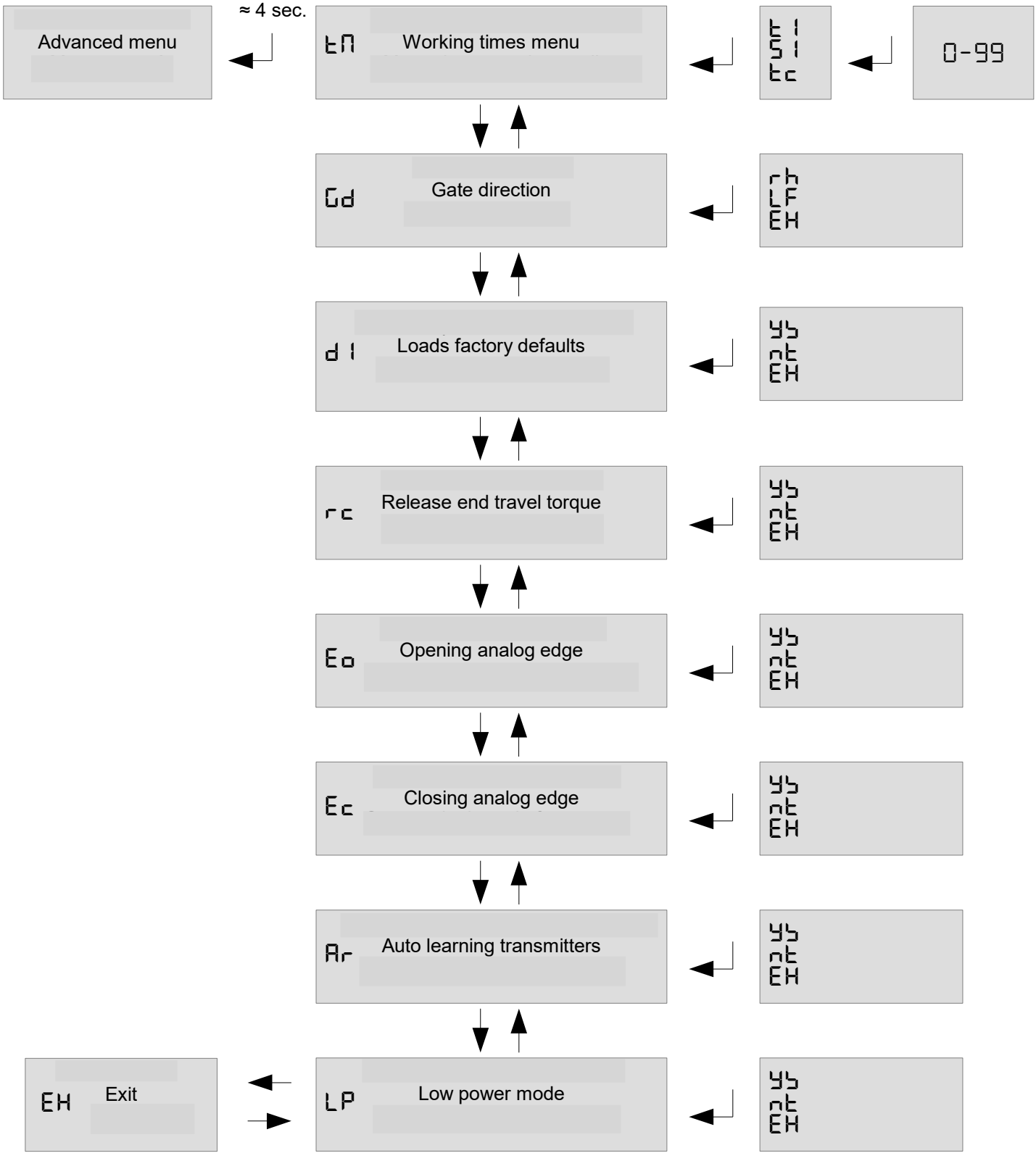
Board Programming

Advanced Menu

Push enter button till on the display is shown tM. With up/down it's possible to select all items in this menu.
To exit this menu select EH or push *up/down* together.
After 2 minutes without actions, control unit exits itself from this menu.

Advanced menu map



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Advanced menu

tM Working times menu:
In this menu it's possible to modify working times of control unit:
t 1 – Working time motor 1
S 1 – Start time slowdown motor 1
tc – Courtesy light time (x10 sec)
EH – Exits from advanced menu
Once selected working time to be changed, use *up/down* to modify it from 0 to 99 seconds. Push *enter* to confirm.
To exit without modifications select Eh or push together *up* and *down*.

Gd Gate direction:
In this menu it's possible to invert motor direction and limit switches according if gate is right or left. Use up/down to choose right (rh), left (LF) or exit (EH). Push enter to confirm.

d 1 Load defaults:
Choosing this menu and confirming with yes (YS), sets the control unit at factory defaults.

rc Release torque at work end:
Enabling this function, the motors reverse direction for a while to release the torque at end of work. This function is enabled just if limit switches aren't installed. Use up/down to choose yes (YS), not (nt) or exit (EH). Push enter to confirm.

Eo Enable opening analogue edge:
Enabling this function it's enabled the edge active in opening period.

Eo Enable closing analogue edge:
Enabling this function it's enabled the edge active in closing period.

At Enable automatic transmitters leaning:
Enabling this function it's possible to insert new transmitters without accessing base menu. Refer to “Automatic transmitters learning”.

LP Enable low power mode:
In this menu you can enable the low power mode. **Attention**: when this function is enabled, the display is not longer showing input status (Display off in stand-by).

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Operating logic tables

St Step by step

Fase	Comando						
	Start	Pedestrian	Photocell	Photostop	Edge opening	Edge closing	Stop
Closed	Opens	Opens	Ignored	Stops	Stops	Ignored	Stop
Opening	Stops	Stops	Ignored	Stops and waits release	Reverses	Ignored	
Open	Closes	Closes	Ignored	Stops	Ignored	Stops	
Closing	Stops	Stops	Reverses	Reverses	Ignored	Reverses	

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At Automatic closing

Fase	Comando						
	Start	Pedestrian	Photocell	Photostop	Edge opening	Edge closing	Stop
Closed	Opens	Opens	Ignored	Stops	Stops	Ignored	Stop
Opening	Stops	Stops	Ignored	Stops and waits release	Reverses	Ignored	
Open	Closes	Closes	Stops	Stops	Ignored	Stops	
During pause	Exits pause	Exits	Reloads time	Reloads time	Ignored	Reloads time	
Closing	Stops	Stops	Reverses	Reverses	Ignored	Reverses	

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cd Condominium mode

Fase	Comando						
	Start	Pedestrian	Photocell	Photostop	Edge opening	Edge closing	Stop
Closed	Opens	Opens	Ignored	Stops	Stops	Ignored	Stop
Opening	Ignored	Ignored	Ignored	Stops and waits release	Reverses	Ignored	
Open	Ignored	Ignored	Stops	Stops	Ignored	Stops	
During pause	Reloads time	Reloads time	Reloads time	Reloads time	Ignored	Reloads time	
Closing	Ignored	Ignored	Reverses	Reverses	Ignored	Reverses	

GB

Default settings
Here it follows list of default settings, the same set after a d I command of advanced menu.

Item		Default	
oL	Operating logic	St	Step by step
SP	Pause time	10	10 seconds
t I	Working time	30	30 seconds
S I	Slowing down time	20	20 seconds
tc	Electric lock activation time	12	120 seconds
Gd	Gate direction	rh	Right
rc	Release end travel torque	nt	Not
Eo	Opening analog edge	nt	Not
Ec	Closing analog edge	nt	Not
At	Auto learning transmitters	YS	Yes
LP	Low power mode	nt	Not

GB

Diagnostic and troubleshooting

The control unit has a self diagnostic software able to find problems. Once a problem occurs, a code is shown on the display in alternance with command status.
Here it follows a troubleshooting table.

Error code	Problem and eventual solution		
E1		Mains power fails, system is running with backup battery. *Verify mains switch and life switch. Verify fuse on transformer (fuse holder).*	
E2		Obstacle detected in the previous cycle. *Verify that gate is free and there's no obstacles in the range. Verify gate wings aren't blocked.*	
E3		Photocells or photostop obstructed for longer than 2 minutes. The gate can't start moving and the blinker could be fixed on. *Verify that photocells and photostop aren't obstructed, and if there's no bugs inside them. Verify wiring to this devices.*	
E4		One of the analog edge is engaged for longer than 2 minutes. *Verify edges aren't engaged, verify wiring to this devices. If no edge installed, disable them in the advanced menu.*	
E5		Stop is engaged for longer than 2 minutes. *Verify wiring to emergency device. If there isn't an emergency device installed, shunt this input with the common.*	
E6		Problem on motor. *Verify connections to the motor, verify motor can work in dead man mode.*	

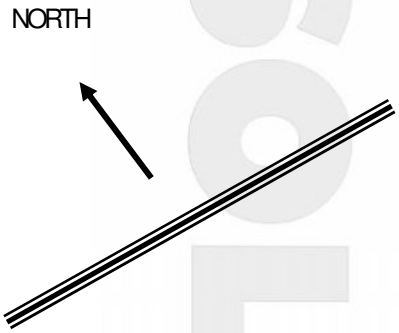
GENERAL SOLAR NOTES

SOLAR PANEL SIZE

Generally speaking simple automatic gate installations will work perfectly in Australia using a 10 watt solar panel. The solar panel size determines the amount of energy you can collect each day. In a simple gate installation we need to collect enough energy to power our control board and run the gate and a 10 watt panel will do this. If however the installation is to include keypads, safety beams or other power hungry devices it may be necessary to increase the solar panel size. Another example where you may wish to consider upsizing your solar panel is where you may have a partially shaded area and you need to collect your energy each day in a shorter period of time. If you do decide to increase the size of your solar panel it may be necessary to install a simple regulator to protect your battery. Check with Automatic Solutions regarding this.

SOLAR PANEL DIRECTION

Your solar panel ideally should be mounted at an angle of 35 degrees and facing north (NB: In Australia).

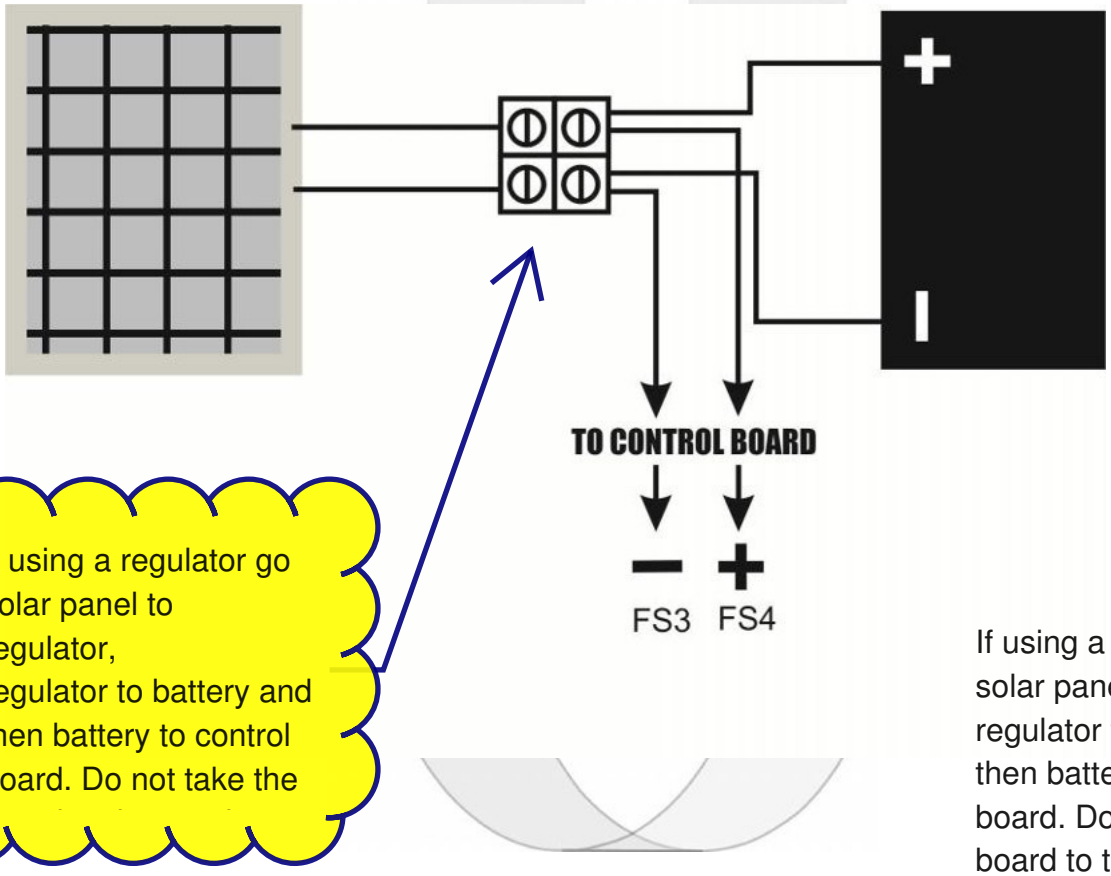


BATTERY SIZE

The battery stores the energy that you collect each day and your system draws on this battery to operate. All batteries have a limit to their storage capacity and can therefore only store enough energy to last our system a certain period of time. What happens if we have for example three days with little or no sunlight, very dark and overcast days? Our battery capacity reduces. The size of the battery will determine the number of days we can have as backup or how many days our system can survive without charging. In general terms bigger is better.

CABLES

Cables must be low voltage cables (5mm is good). Length of cables must be kept to a minimum. Ideally the solar panel will be no more than 10 metres from the battery and the battery will be no more than 5 metres from the motor. Connections must be clean and good quality.



If using a regulator go solar panel to regulator, regulator to battery and then battery to control board. Do not take the board to the regulator.

Solar Panel Connection ID400