

- IT** Kit solare fotovoltaico
Istruzioni ed avvertenze per l'installazione e l'uso
- EN** PV solar kit
Installation and use instructions and warnings
- FR** Kit solaire PV
Instructions et avertissements pour l'installation et l'utilisation
- ES** Kit solar fotovoltaico
Instrucciones y advertencias para la instalación y el uso



1. General warnings

⚠ CAUTION! - Important safety instructions. Follow all instructions as improper installation may cause serious damage

⚠ CAUTION! - Important safety instructions. It is important for you to comply with these instructions for your own and other people's safety. Keep these instructions

- The appliance may be used by children aged over 8 years old and by people with reduced physical, sensory or mental capabilities, or without experience or the necessary knowledge, provided they are under supervision or have received instructions relating to the safe operation of the appliance and have understood the dangers associated with it
- 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 out of reach of children.
- 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
- Cleaning and maintenance to be carried out by the user must not be carried out by unsupervised children.

⚠ CAUTION! - 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

⚠ CAUTION! - 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 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"
- The packing materials of the product must be disposed of in compliance with local regulations.
- Before proceeding with the installation of the product, check that all materials are in good working order and suited to the intended applications.
- 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
- Before working on the system (maintenance, cleaning), always disconnect the product from the mains power supply
- Provide a disconnection device (not supplied) in the plant's mains power supply, with a contact opening distance that permits 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. If this should happen, stop installation immediately and contact Customer Service.

2. Product Description

GO GREEN is an autonomous power system designed for King gates auto mations for gates and garage doors.

Any other use is to be considered improper! The manufacturer declines all liability for damage resulting from improper use of the various devices of the system and other than as specified in this manual.

The GO GREEN system is particularly suitable for power supply to automations located far from the fixed power mains.

It comprises 3 standard devices, the combination of which enables different configurations, able to store solar energy or electrical mains energy for use when required by the automation on which the system is installed.

The various system devices are available in the following packs:

- Battery box: the core of the system. This device can store electrical energy produced by the pannel during the hours of sunlight, making it available at any time of day, including days with adverse weather conditions. The same device can also store energy from the fixed electrical mains, via GO POWER.
- Solar Panel: this is a device able to convert sunlight directly into electrical energy. The pack contains a photovoltaic panel, for re-charging battery box, and fixing hardware;
- GO POWER: this device enables periodic or emergency recharging of battery box via the electrical mains in a protected environment. The pack contains a GO POWER battery charger.

3. Installation

3.1 - System application limits

VERY IMPORTANT

- When the automation is powered by the GOGREEN system, it must never be connected or powered simultaneously by the electrical

mains.

- The solar pannel and GO POWER, which supply energy to battery box, are alternatives and cannot be used simultaneously.

• for photovoltaic power supply (with pannel)

Graphs A, B and C indicate the solar power available, on the basis of the location's latitude, at all times of the calendar year. The graph curve is generated taking into account the quantity of daylight recorded at a specific latitude within a year.

To obtain the maximum possible number of cycles per day, proceed as follows:

01. On graph A, B or C (depending on the latitude of your system) identify the period of the year concerned, then locate value "Cb" on the vertical axis, corresponding to this period, as shown in the example in the graph.
02. Then use value "Cb" to make the calculations as stated in next chapter.

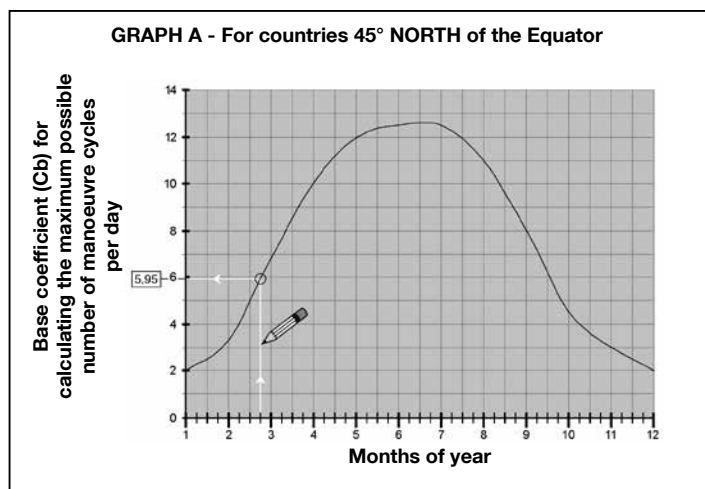
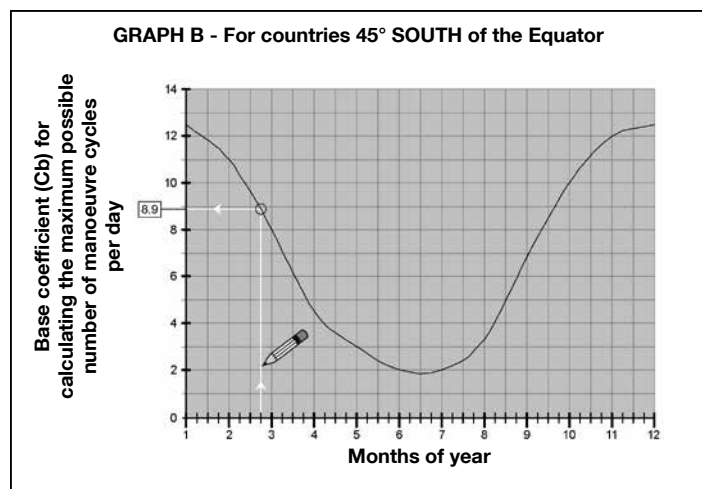
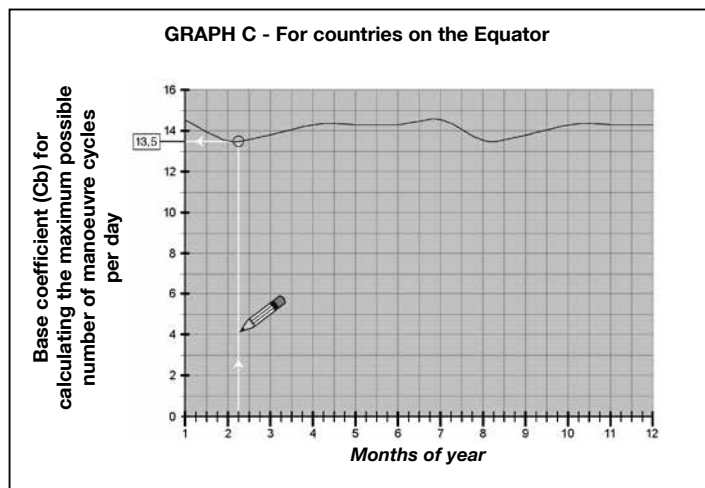
WARNING!

– During the day, if the photovoltaic panel remains in the shade for a certain period of the day (in particular from 10 am to 2 pm) the maximum possible number of operating cycles decreases in proportion to the hours without panel exposure to sunlight.

– To increase the maximum possible number of cycles per day, automation consumption must be reduced. For this reason, the "power saving mode" function must be programmed on the automation control units, (refer to the automation instruction manual).

• for mains power supply (with GO POWER)

The battery must be recharged via the mains in a protected environment, previously detaching the solar panel and the automation.



Calculate the maximum number of cycles per day that the automation system can perform:

01. In graphs A, B or C (section 3.1), find the "coefficient basis (Cb)" of the desired period of the year.
02. Depending on the type of automatic system installed and the level of stand-by programmed, find in Table 1 the value "B": add this value to the value "B" of any installed accessories.
03. Subtract "B" from "Cb" to obtain the value "Y" ($Y = Cb - B$).
04. Depending on the type of automatic system installed and the weight of the door of the gate, find in Table 2 the value "K": add this value to the value "K" of any installed accessories.
05. Find the value "s": s = duration of a full cycle (Opening + Closing) of its automation system, measured in seconds.

06. Multiply "K" and "s" to get the value "Ks" ($Ks = K \times s$).

07. Locate on the graph of Figure 1 the curve corresponding to the value "Ks" just calculated. For intermediate values you must draw intermediate curves.

08. Starting from the value "Y" calculated above, draw a vertical line that intersects the curve of the value "Ks".

09. From this point, draw a horizontal line that intersects the line of the cycles/day values. The result is the maximum number of cycles per day that the automatic system can perform.

CAUTION! - To obtain maximum efficiency from the GoGreen system, you must programme the automation control unit with the "Stand-By" function. For details, refer to the control unit instruction manual.

Table 1

	type STAND-BY	
	NONE	STAND-BY ACTIVE
StarG8 24	B=1.2	B=0.9
ACCESSORIES		
Idea 24	B= 0	B= 0
Viky 30	B= 1.4	B= 0

Table 2

	type DOOR/UNBALANCING		
	LIGHT	MEDIUM	HEAVY
Dynamos 24/400	K=2	K=3	K=4
Dynamos 24/600	K=3	K=5	K=7
Dynamos 24/1000	K=4	K=7	K=10
Jet24*	K=2	K=4	K=6
Couper24*	K=2	K=4	K=6
Linear40024*	K=2	K=4	K=6
Linear50024*	K=2	K=4	K=6
Modus280*	K=2	K=4	K=6
Modus420*	K=2	K=4	K=6
Minimodus*	K=2	K=4	K=6
Intro24-400*	K=2	K=4	K=6
Open4000*	not compatible	not compatible	not compatible
Open6000*	not compatible	not compatible	not compatible
ACCESSORIES			
Viky30	K=0	K=0	K=0
Idea24	K=1	K=1	K=1
* Warning: if only one motor is used the value of "k" should be halved			

3.2 - Preliminary installation

To ascertain suitability of the system with respect to the specific features of the automation to be powered, the following checks should be performed as well as a check for compliance of the technical data in the chapter "Technical characteristics".

In the vicinity of the automation to be powered, locate the ideal point for installation of the photovoltaic panel and the location for the battery, taking into consideration the following restraints:

- i limiti d'impiego (paragrafo 3.1).
- the maximum length of the power cable (3 m) and the cable of the photovoltaic panel (3 m).
- the space available in the vicinity of the automation to be powered.
- ensure that the selected surfaces for installation of the two devices are solid and guarantee a stable fixture.
- ensure that each device to be installed is in a sheltered location and protected against the risk of accidental impact.
- in particular, for each device ensure the following:

photovoltaic panel

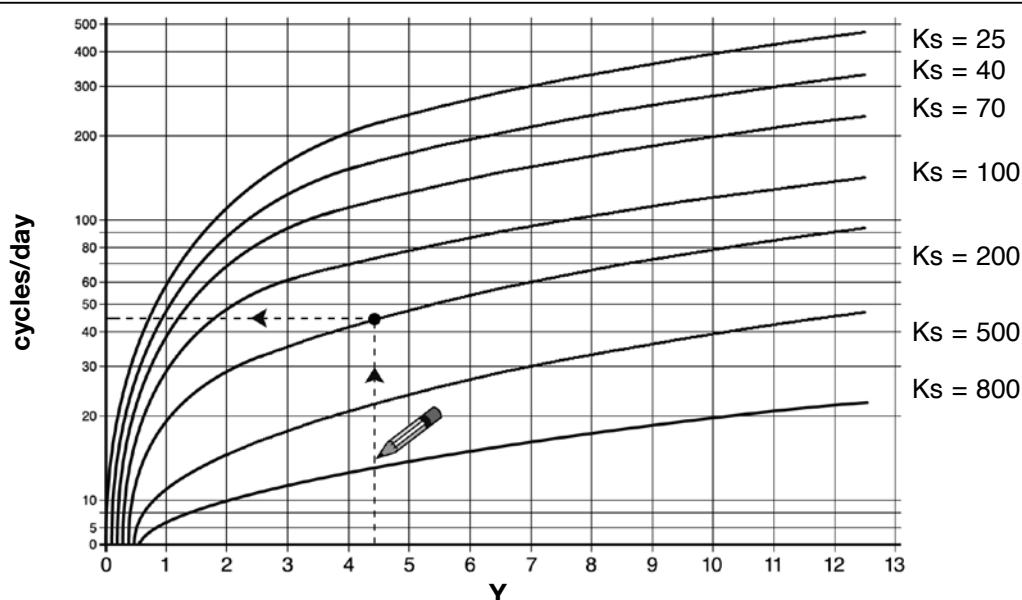
- ensure that the selected panel installation site guarantees 100% direct exposure to sunlight (full sun) every day of the year.
- ensure that the selected panel installation site is far from vegetation, walls or other situations that may create shade, even partial, on the sensitive surfaces of the panel. Caution! – this surface must be exposed to direct sunlight in all points; partial shade, even if small in size (for example caused by a leaf or other object) will significantly reduce the power capacity of the panel.
- check the possibility of correctly positioning and inclining the panel, with reference to the technical instructions in Chapter 3.3.

battery box

To ensure optimal efficiency of the battery and prolonged battery lifetime, it should be installed in a location – in the vicinity of the automation to be powered – protected against high summer temperatures and low winter temperatures.

In fact the battery charge performance depends on the ambient temperature where the battery is installed: optimal efficiency is obtained at medium temperatures, while efficiency is considerably reduced at low temperatures.

On the other hand, battery lifetime is influenced above all by high summer temperatures, which accelerate part ageing. Normally the battery average lifetime is approx. 4-5 years; this also depends on the intensity of automation use.



3.3 - Component assembly and connections

• STEP 1 – Optimal photovoltaic panel positioning

As a general rule, the panel must be positioned so that it can be constantly illuminated by sunlight during the day and throughout the year. This means that its horizontal position and vertical angle must be calculated precisely on the basis of the location where it is to be installed.

Therefore, after performing the checks specified in section 3.1-3.2, and considering the various options for panel installation as shown in fig. 1, proceed as follows:

- Ensure the correct position of the panel on the horizontal plane as follows:

a) In the installation site, determine the cardinal points NORTH and SOUTH, with the aid of a compass or a geographical map of the location.

b) Then position the panel in the direction NORTH or SOUTH, according to the following:

- if the installation site is in a country North of the equator (United

States; Europe; Russia; etc.) the panel must be positioned exactly SOUTH;

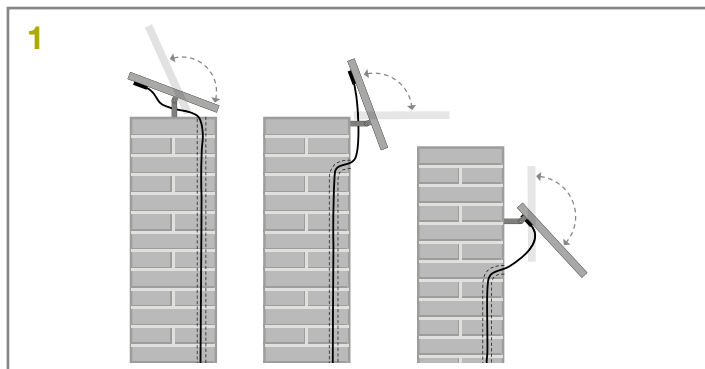
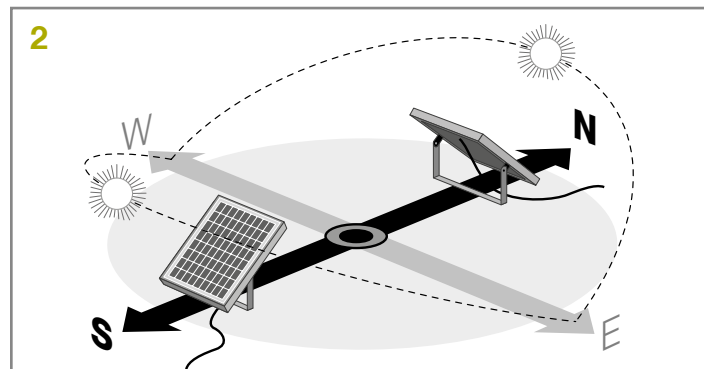
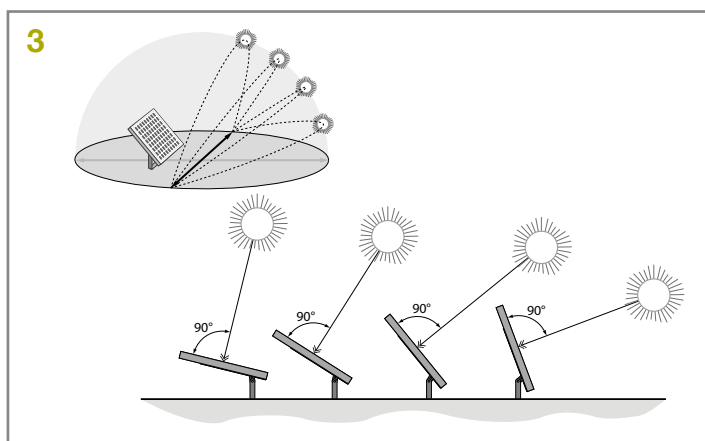
- if the installation site is in a country South of the equator (Latin America; Australia; Indonesia, etc.) the panel must be positioned exactly NORTH.

For further information, refer to fig. 2.

- Ensure the correct position of the panel on the vertical plane as follows:

Considering the fact that maximum efficiency of the panel is also required in the winter period, i.e. when the daily hours of sunlight are fewer than in the Summer, the panel should be positioned at an angle that receives the sun rays at right angles (frontal) to the sensitive surface.

This angle corresponds to the latitude of the location and can be read on any commercial geographical map. For example, Madrid has a latitude of 40°; Venice 45°; or London approx 50° etc. For further information, refer to fig. 3.

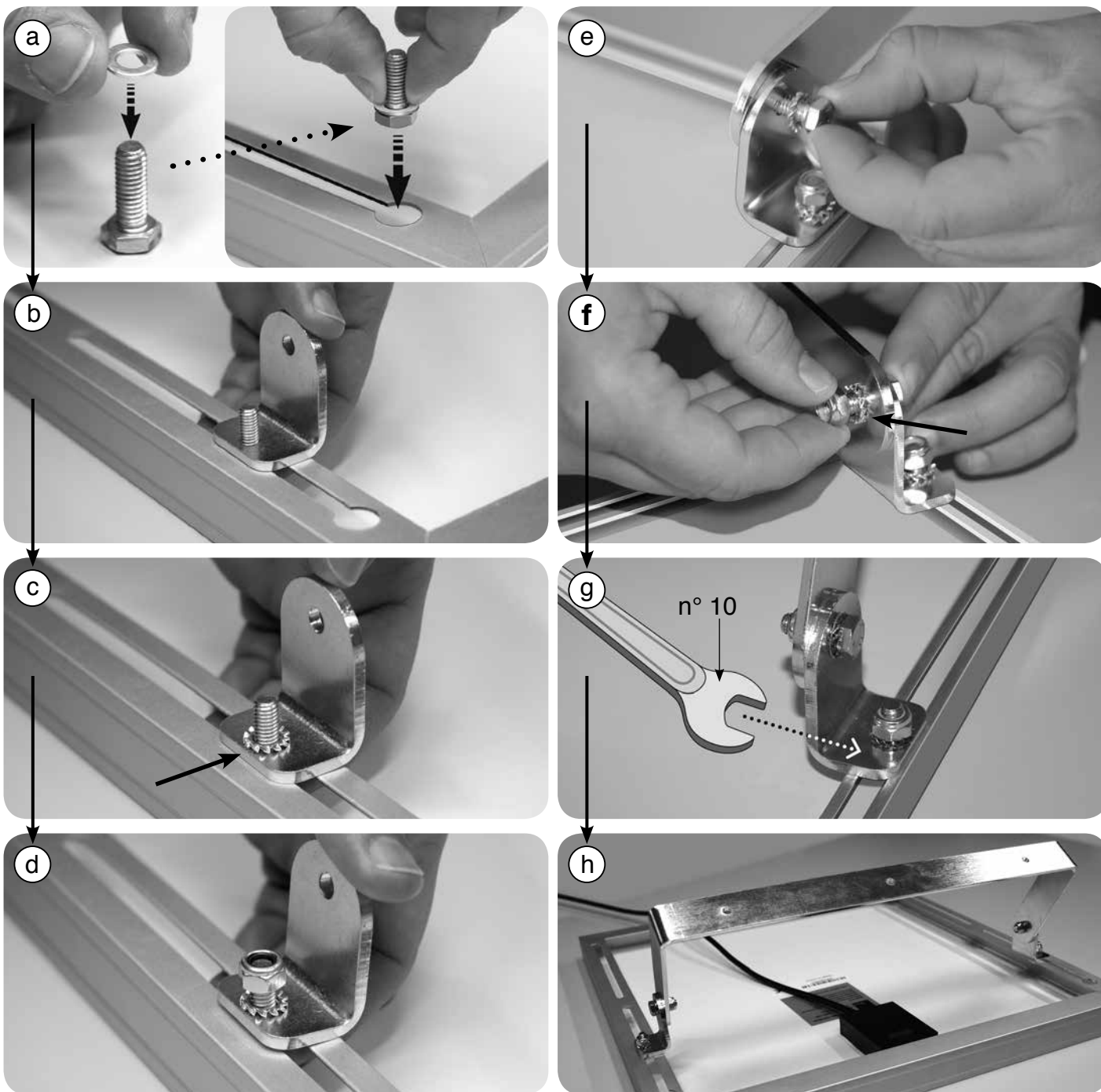


• STEP 2 – Fixing the photovoltaic panel in the selected site

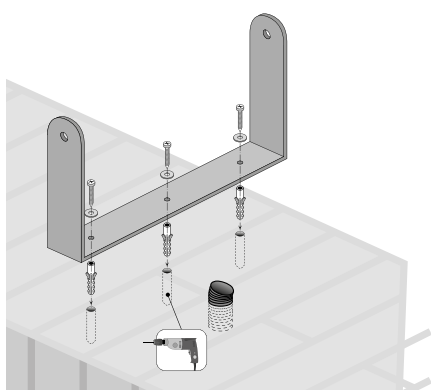
After establishing the precise position of the panel, fit all components

of the support bracket according to the instructions in fig. 4. Then fix the panel bracket to the selected surface as shown in fig. 5.

4 Assembly of photovoltaic panel support bracket



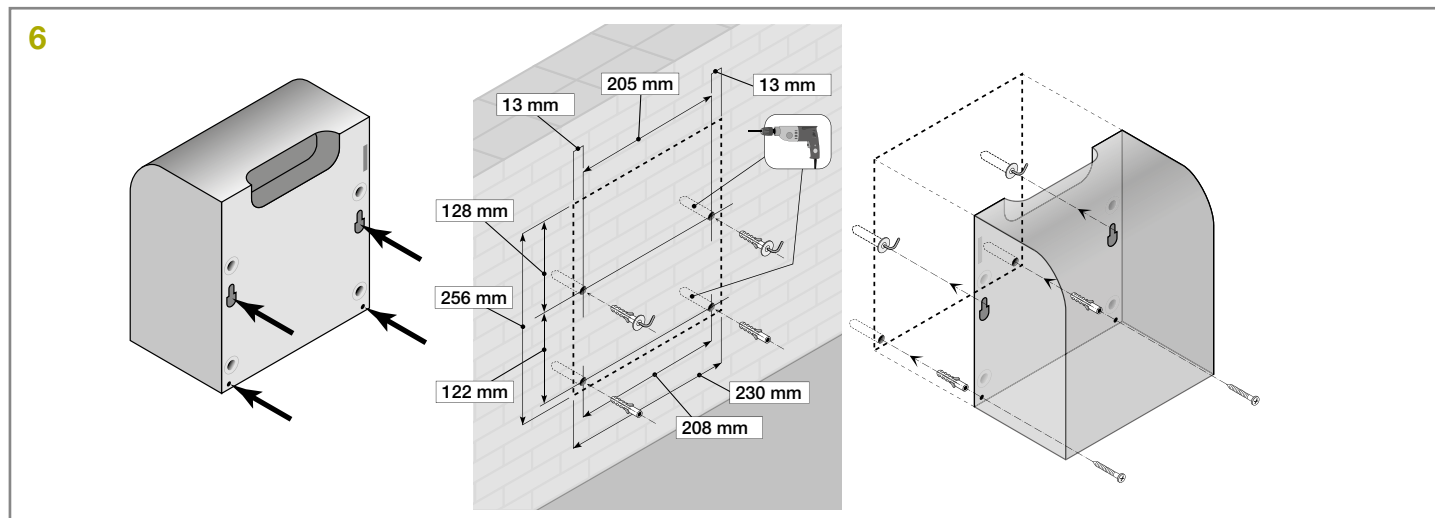
5



• STEP 3 – Fixing the battery in the selected site

After performing the checks specified in section 3.1 - 3.2 establishing the precise position for the battery, fix the latter onto the selected surface as shown in fig. 6.

Note – For fixture, use two screws on the underside, only if the battery is to be secured in a fixed position and not removable.



• STEP 4 – Cable routing

IMPORTANT! – If the power cable in the pack is used outdoors, it must be entirely protected with special ducting suitable for the protection of electric cables.

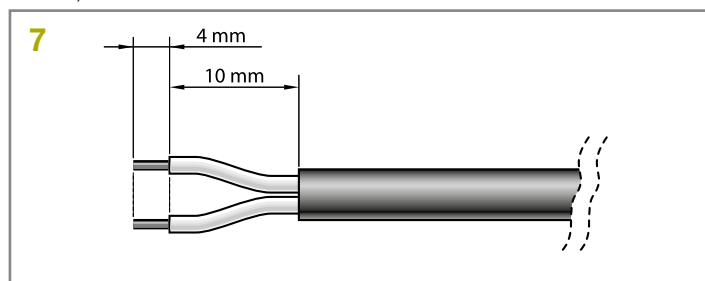
After fixing the panel and battery, route the panel cable through the tube or protection ducting through to the battery.

With reference to the instruction manual of the automation to be powered, remove the control unit protection cover. Then pass the end of the power cable (with wires stripped) through the automation (where the other cables are routed) and through the dedicated cable clamp. Then route the cable through the protection ducting (if present) through to the battery.

Caution! – Do not connect the power cable to the control unit; leave access to the control unit open and leave the cable clamp loose.

• STEP 5 – Assembly of “L” socket on the photovoltaic panel cable

If the cable is too long, it can be shortened, taking care to strip the wires so that their length is equal to the values specified in the fig. 7 (caution! – different lengths may impair subsequent assembly of the socket).



Then proceed with assembly of the GREY “L” type socket on the end of the panel cable, as follows:

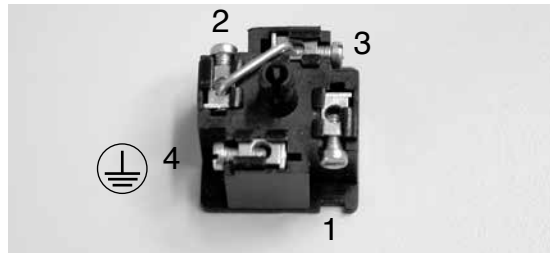
01. Insert the various elements of the socket on the cable, taking care to observe the sequence as shown in fig. 8;

8



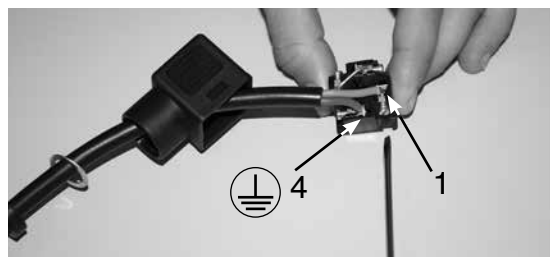
CAUTION! – Do not modify the electric jumper on the connector (fig. 9).

9



02. Using a slotted screwdriver, attach the blue wire to terminal n° 1 on the connector and brown wire to the earthing terminal (4) (fig. 10). Note – The reference numbers and symbols are printed on the connector below the terminals and on the opposite side.

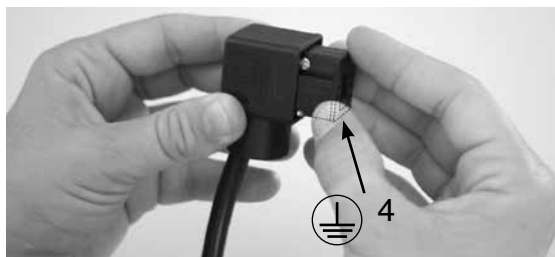
10



03. After fixing the two wires, insert the connector in its casing (fig. 11).

Important – The correct position of the connector is that with the earthing symbol in the lower position.

11



04. Then pull the cable outwards from the socket and insert the seal and washer (fig. 12 e 13). Lastly, tighten the cable clamp (fig. 14) using a wrench, to guarantee completely sealed closure.

12



13



14



05. After assembling the socket, position the seal supplied on the connection side (fig. 15).

15



• **STEP 6 – Assembly of the “pipette” socket in BLACK on the power cable.**

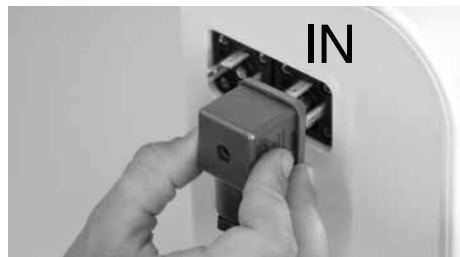
Proceed exactly as described in STEP 5 but with the “pipette” socket in BLACK.

• **STEP 7 – Connecting the photovoltaic panel to the battery**

To connect the panel to the battery, proceed as follows:

01. Connect the GREY “L” type socket to the “IN” connector on the battery (fig. 16);

16



02. To select the most suitable connection configuration for the connection of all system devices, refer to the example shown in fig. 17. Note – If frequent disconnection of the battery plug is envisaged, use the screw in fig. 18. Otherwise use the screw in fig. 19.

17



18



19



• **STEP 8 – Connecting the battery to the automation**

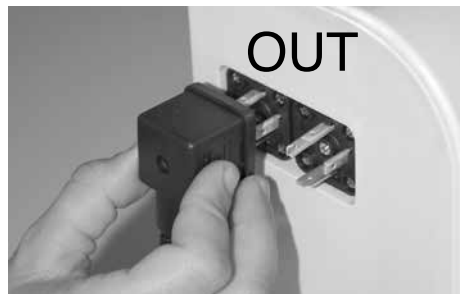
CAUTION! – For safety reasons, the operations described in Step 8 must be performed exclusively by a skilled and qualified technician.

To connect the battery to the automation, proceed as follows:

01. Access the control unit of the automation and insert the power cable connector in the buffer battery socket on the control unit. To locate this socket, refer to the instruction manual of the automation to be powered.

02. Connect the BLACK “L” type socket to the OUT connector on the battery (fig. 20);

16



03. Fix the socket by means of the safety screws supplied, with reference to fig. 21. Note – If frequent disconnection of the connector from the battery is envisaged, use the screw in fig. 18. Otherwise use the screw in fig. 19.

21



3.4 - General notes on system use

In general, when the battery is not sufficiently charged, the energy reserve will run out in a few days. For this reason, after installation and connecting the product to the automation, the system may not be operative immediately (this depends on the fact that the battery may be discharged due to the natural process of discharging over time, even when stored).

The battery enables a finite number of automation manoeuvre cycles. Therefore, if not constantly recharged using pannel or occasionally by means of GO POWER, the battery low signal may be activated, with sequential flashing of the Led and a series of beeps (this signal may be temporary or permanent).

In particular, when powered by pannel, recharging may be influenced by atmospheric conditions, or intense use of the automation (when the maximum admissible number of manoeuvre cycles is exceeded). When this occurs, the battery box may indicate the battery low status.

Battery box charging can be restored in one of the following ways:

A) - By limiting use of the automation until lighting conditions improve to enable the battery to recharge naturally, via the connection to the photovoltaic panel.

To accelerate the recharging process, disconnect the battery box from the automation control unit and wait for a few days to enable the photovoltaic panel to store sufficient solar energy to recharge the battery.

B) - Disconnect the battery box from the automation control unit and the solar panel (if present). Then recharge battery box using the GO POWER battery charger connected to the mains in a protected environment.

When the battery is recharging (via the photovoltaic panel or GO POWER battery charger) the red led emits 2 short flashes every 5 seconds. Therefore check that this signal is present, also after installation, when the panel is exposed to the sunlight.

The "battery low" warning signal is cleared when the system reaches sufficient electrical autonomy to enable automation operation.

If the automation is not used for extended periods, disconnect the automation and photovoltaic panel connectors from the battery, and store the latter in a cool and dry location.

4. Maintenance

In general, these devices do not require special maintenance; however, regular checks over time will ensure system efficiency.

Therefore, to ensure correct maintenance, check every 6 months that the photovoltaic panel has not accumulated dirt (leaves, sand, etc.) as this may reduce efficiency.

Also check whether battery replacement is required, as the ageing process reduces autonomy over time.

CAUTION – The battery must be replaced exclusively by skilled and qualified personnel.

5. System device disposal

This device is an integral part of the automation and therefore must be disposed together with the latter.

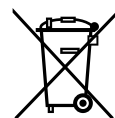
As in installation, also at the end of lifetime of these devices, the disassembly and scrapping operations must be performed by qualified personnel.

This device comprise various types of materials: some of which can be recycled while others must be scrapped. Seek information on the recycling and disposal systems envisaged by the local regulations in your area for the relative device category.

Caution! – some parts of these devices may contain polluting or hazardous substances which, if disposed of into the environment, may cause serious damage to the environment or physical health.

As indicated by the symbol alongside, disposal of these devices in domestic waste is strictly prohibited.

Separate the waste into categories for disposal, according to the methods envisaged by current legislation in your area, or return the devices to the retailer when purchasing new equivalent versions.



Caution! – local legislation may envisage serious fines in the event of abusive disposal of this device.

Caution! – The battery contains pollutant substances; after removing, never dispose of as standard waste. Dispose of or recycle according to current local standards.

WHAT TO DO IF... (troubleshooting guide)

- **The automation control unit does not turn on and the battery does not supply any signal.**

This may depend on incorrect connections or electrical wiring not fully inserted; otherwise the battery may be completely discharged, without sufficient energy to indicate the battery low status.

In this case, follow the quick recharging procedure, using the GO POWER battery charger, or wait until the photovoltaic panel, correctly connected, starts to recharge the battery.

- **The battery tends to discharge too quickly.**

This may be due to excessive ageing of the battery, in which case replacement is recommended; otherwise it may be due to excessively intensive use of the automation, over the application limits envisaged in this manual, found in section 3.1 - 3.2.

- **The battery no longer recharges.**

This may be due to a malfunction of the photovoltaic panel caused by incorrect installation, incorrect cable connections, or malfunction of the battery.

6. Technical specifications

WARNINGS: • All technical specifications stated herein refer to an ambient temperature of 20°C (± 5°C) • King gates srl. reserves the right to apply modifications to the product at any time as deemed necessary, while maintaining the same functionalities and intended use.

BATTERY BOX	
Rated voltage	24 V
Maximum current	10 A
Rated battery capacity	20 Ah
Protection rating	IP 44
Operating temperature	-20 °C ÷ +50 °C (0 °C ÷ +40 °C when charging using the back-up power supply unit connected to the mains)
Complete recharging time	approx. 15 hours (when charging using the back-up power supply unit connected to the mains)
Dimensions	258 mm x 235 mm x 180 mm
Weight	14 kg

Note – The batteries in the unit are VRLA (Valve Regulated Lead Acid Batteries). They comply with the specific provision A67 of the IATA/ICAAO regulation governing hazardous goods. Battery box is therefore not considered hazardous goods and may be transported without any risk by air, sea and on road.

PHOTOVOLTAIC PANEL	
Rated voltage	24 V
Peak power	30 Wp
Operating temperature	-40 °C ÷ +85 °C
Dimensions	550 mm x 450 mm x 25 mm
Weight	3,5 kg

Warning – The glass of the photovoltaic panel has been tested to resist to hailstones and medium entity impact. In the event of particularly consistent hail or impact, the glass may be damaged; in this case contact the King gates Technical Assistance service.

EN - EC declaration of conformity

Declaration in accordance with the Directives: 2004/108/CE (EMC); 2006/95/CE (LVD)

Declaration number: K110 **Revision:** 0 **Language:** EN

Manufacturer's name: KING GATES S.R.L.

Address: Via Malignani, 42 - 33077 - Sacile (PN) Italy

Type of product: Kit solare

Model / Type: Kit GO GREEN comprises the photovoltaic panel and the battery box

The undersigned Giorgio Zanutto in the role of Managing Director, declares under his sole responsibility, that the product specified above conforms to the provisions of the following directives:

• Directive 2006/95/EC OF THE EUROPEAN PARLIAMENT AND COUNCIL of 12 December 2006 regarding the approximation of member state legislation related to electrical material destined for use within specific voltage limits, according to the following harmonised standards:
EN 60335-1:2002 + A1:2004 + A11:2004 + A12:2006 + A2:2006 + A13:2008

• DIRECTIVE 2004/108/EC OF THE EUROPEAN PARLIAMENT AND COUNCIL of 15 December 2004 regarding the approximation of member state legislation related to electromagnetic compatibility, repealing directive 89/336/EEC, according to the following standards:
EN 61000-6-2:2005, EN 61000-6-3:2007

Sacile, 10 March 2015

Giorgio Zanutto
(Managing director)

