

User Manual



1.5KW/4KW/6KW
Solar Inverter/Charger

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ABOUT THIS MANUAL

Purpose

This manual describes the assembly, installation, operation and troubleshooting of this unit. Please read this manual carefully before installations and operations. Keep this manual for future reference.

Scope

This manual provides safety and installation guidelines as well as information on tools and wiring.

SAFETY INSTRUCTIONS



WARNING: All safety instructions in this document must be read, understood and followed. Failure to follow these instructions will result in death or serious injury.

1. Before using the unit, read all instructions and cautionary markings on the unit, the batteries and all appropriate sections of this manual.
2. **CAUTION** --To reduce risk of injury, charge only deep-cycle lead acid type rechargeable batteries. Other types of batteries may burst, causing personal injury and damage.
3. Do not disassemble the unit. Take it to a qualified service center when service or repair is required. Incorrect re-assembly may result in a risk of electric shock or fire.
4. To reduce risk of electric shock, disconnect all wirings before attempting any maintenance or cleaning. Turning off the unit will not reduce this risk.
5. **CAUTION** – Only qualified personnel can install this device with battery.
6. **NEVER** charge a frozen battery.
7. For optimum operation of this inverter/charger, please follow required spec to select appropriate cable size. It's very important to correctly operate this inverter/charger.
8. Be very cautious when working with metal tools on or around batteries. A potential risk exists to drop a tool to spark or short circuit batteries or other electrical parts and could cause an explosion.
9. Please strictly follow installation procedure when you want to disconnect AC or DC terminals. Please refer to INSTALLATION section of this manual for the details.
10. One piece of 150A fuse is provided as over-current protection for the battery supply.
11. **GROUNDING INSTRUCTIONS** -This inverter/charger should be connected to a permanent grounded wiring system. Be sure to comply with local requirements and regulation to install this inverter.
12. **NEVER** cause AC output and DC input short circuited. Do NOT connect to the mains when DC input short circuits.
13. **Warning!!** Only qualified service persons are able to service this device. If errors still persist after following troubleshooting table, please send this inverter/charger back to local dealer or service center for maintenance.
14. **WARNING:** Because this inverter is non-isolated, only three types of PV modules are acceptable: single crystalline, poly crystalline with class A-rated and CIGS modules. To avoid any malfunction, do not connect any PV modules with possible current leakage to the inverter. For example, grounded PV modules will cause current leakage to the inverter. When using CIGS modules, please be sure NO grounding.
15. **CAUTION:** It's requested to use PV junction box with surge protection. Otherwise, it will cause damage on inverter when lightning occurs on PV modules.

INTRODUCTION

This is a multi-function inverter, combining functions of inverter, solar charger and battery charger to offer uninterruptible power support in a single package. The comprehensive LCD display offers user-configurable and easy-accessible button operations such as battery charging current, AC or solar charging priority, and acceptable input voltage based on different applications.

Features

- Pure sine wave inverter
- Configurable input voltage ranges for home appliances and personal computers via LCD control panel
- Configurable battery charging current based on applications via LCD control panel
- Configurable AC/Solar Charger priority via LCD control panel
- Compatible to utility mains or generator power
- Auto restart while AC is recovering
- Overload / Over temperature / short circuit protection
- Smart battery charger design for optimized battery performance
- Cold start function
- Removable LCD control module
- Multiple communication ports for BMS (RS485, CAN-BUS, RS232)
- Built-in WiFi for mobile monitoring (Requires App), OTG USB function, dusk filters
- Configurable AC/PV Output usage timer and prioritization

Basic System Architecture

The following illustration shows basic application for this unit. It also required the following devices to have a complete running system:

- Generator or Utility mains.
- PV modules

Consult with your system integrator for other possible system architectures depending on your requirements.

This inverter can power various appliances in home or office environment, including motor-type appliances such as tube light, fan, refrigerator and air conditioners.

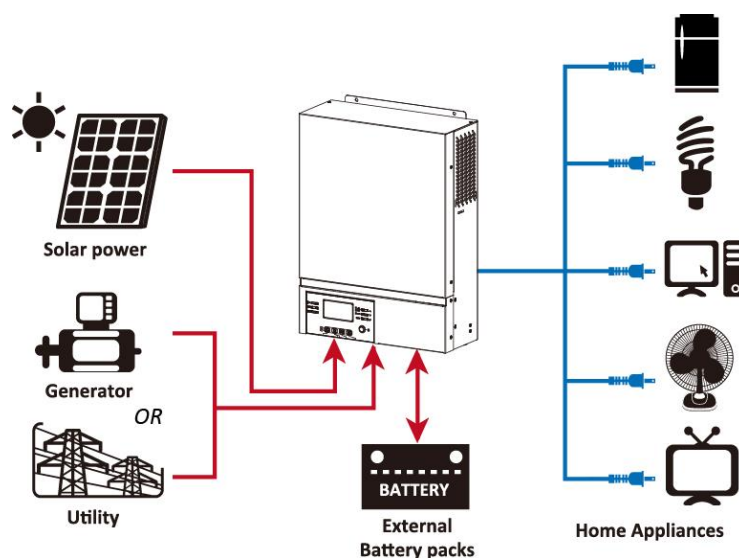
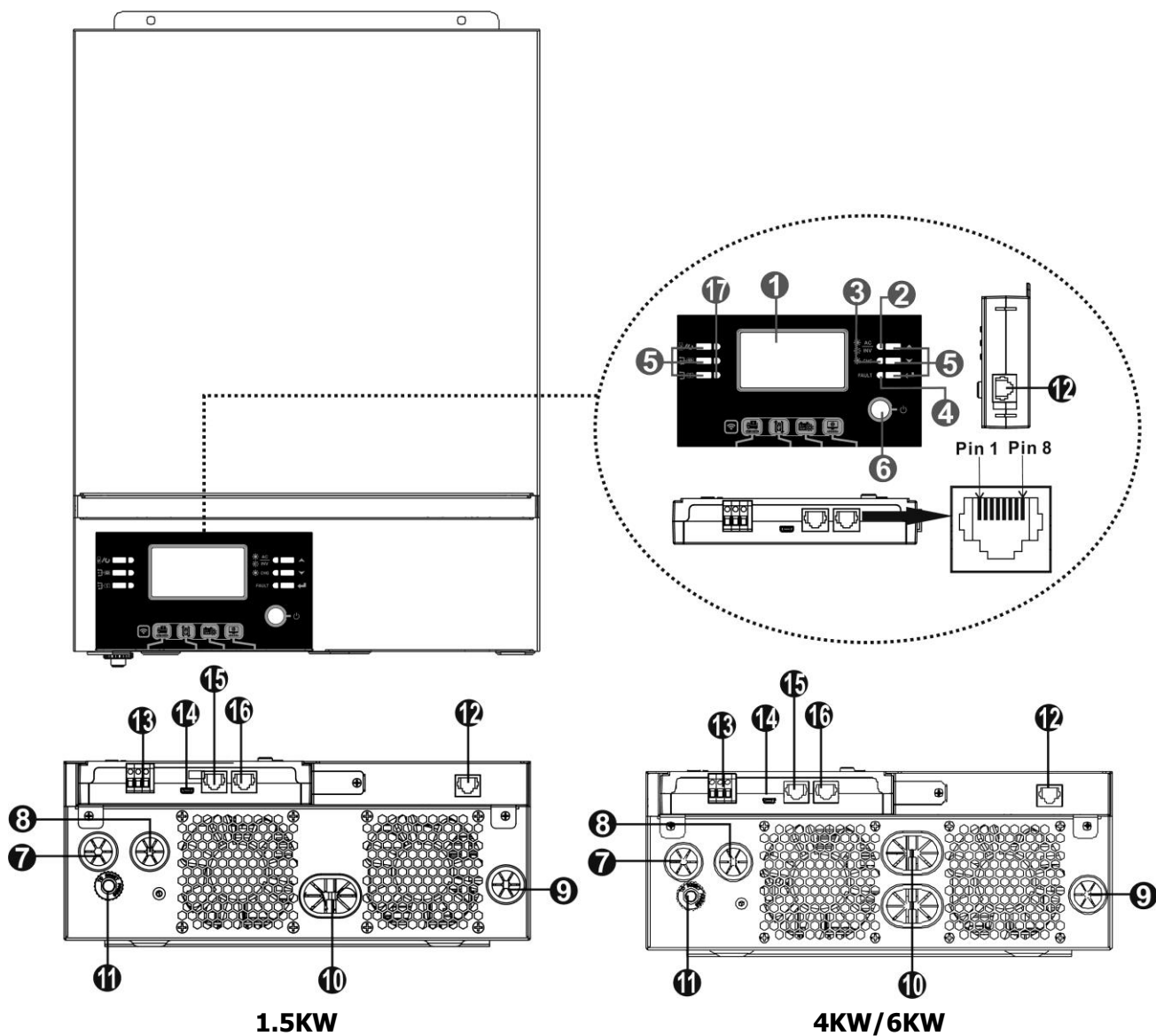


Figure 1 Hybrid Power System

Product Overview



1. LCD display
2. Status indicator
3. Charging indicator
4. Fault indicator
5. Function buttons
6. Power on/off switch
7. AC input
8. AC output
9. PV input
10. Battery input
11. Circuit breaker
12. Remote LCD panel communication port
13. Dry contact
14. USB communication port
15. BMS communication port: CAN and RS232 or RS485
16. RS-232 communication port
17. Output source indicators (refer to OPERATION/Operation and Display Panel section for details) and USB function setting reminder (refer to OPERATION/Function Setting for the details)

INSTALLATION

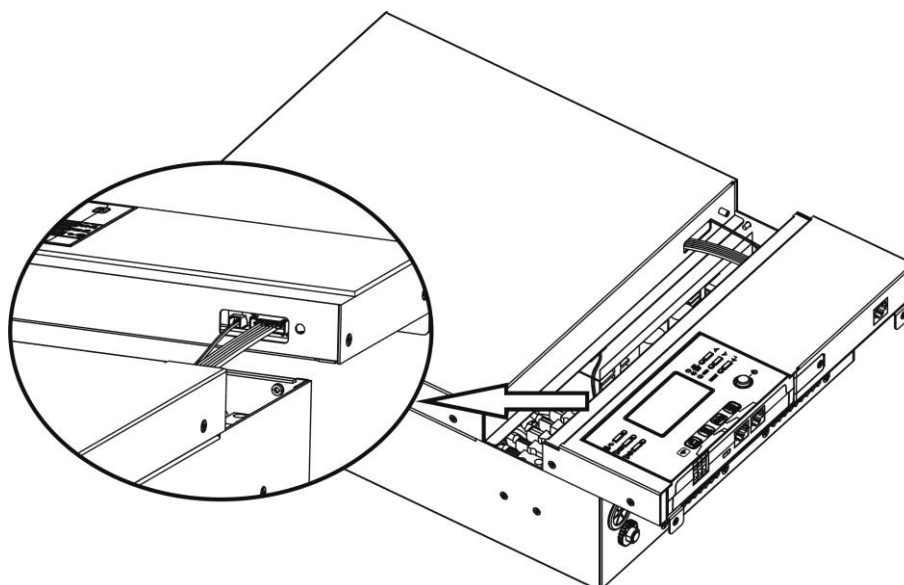
Unpacking and Inspection

Before installation, please inspect the content. Be sure that nothing inside the package is damaged. You should have received the following items inside the package:

- Inverter x 1
- User manual x 1
- RS232 Communication cable x 1
- Software CD x 1
- DC Fuse x 1

Preparation

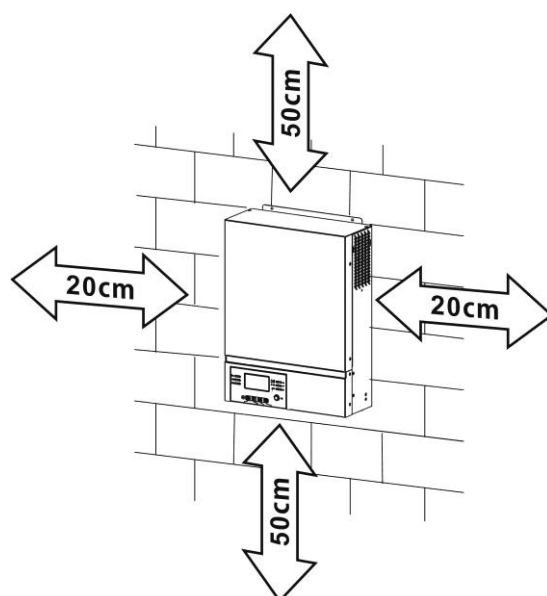
Before connecting all wirings, please take off the bottom cover by removing two screws as shown below. Detach the cables from the cover.



Mounting the Unit

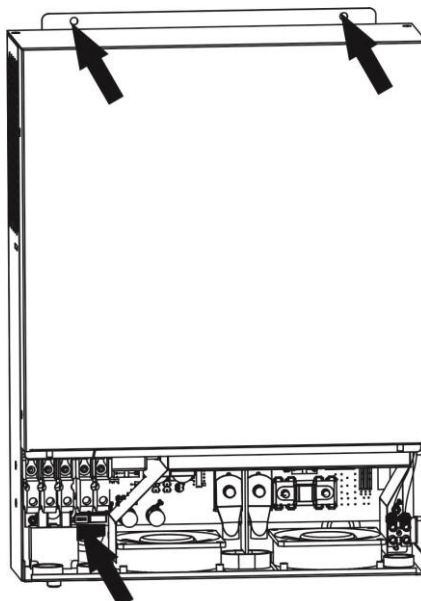
Consider the followings before selecting your placements:

- Do not mount the inverter on flammable construction materials.
- Mount on a solid surface
- Install the inverter at eye level in order to allow easy LCD display readout.
- For proper air circulation and heat dissipation, allow a clearance of approx. 20 cm to the side and approx. 50 cm above and below the unit.
- The ambient temperature should be between 0°C and 55°C to ensure optimal operation.
- The recommended orientation is to adhered to the wall vertically. Be sure to keep other objects and surfaces as shown in the diagram to guarantee sufficient heat dissipation and to have enough space for wirings.



SUITABLE FOR MOUNTING ON CONCRETE OR OTHER NON-COMBUSTIBLE SURFACE ONLY.

Mounting the unit by screwing the three screws as shown below. It's recommended to use M4 or M5 screws.



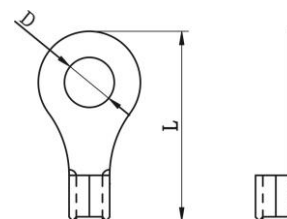
Battery Connection

CAUTION: For safety operation and regulation compliance, it's requested to install a separate DC over-current protector or disconnection device between battery and the inverter. It may not be necessary to have a disconnection device in some applications, however, it's still recommended to have over-current protection installed. Please refer to typical amperage as required.

WARNING! All wiring must be performed by a qualified electrical technician.

WARNING! It's very important for system safety and efficient operation to use appropriate cables for battery connection. To reduce risk of injury, please use the proper recommended cable in the table below.

Ring terminal:

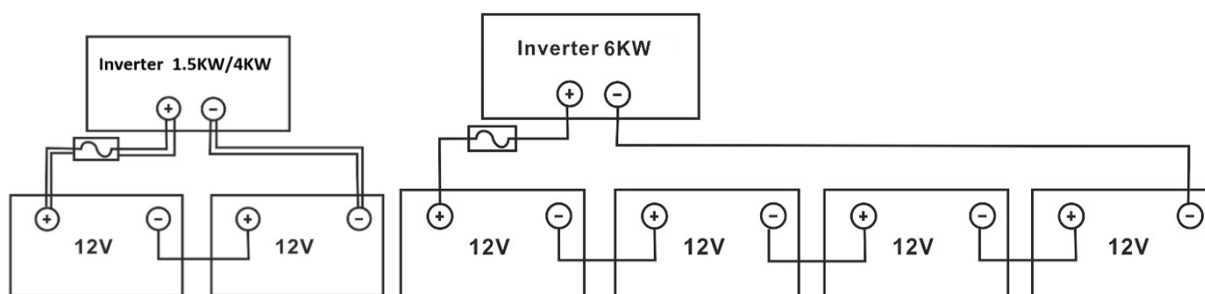


Recommended battery cable size:

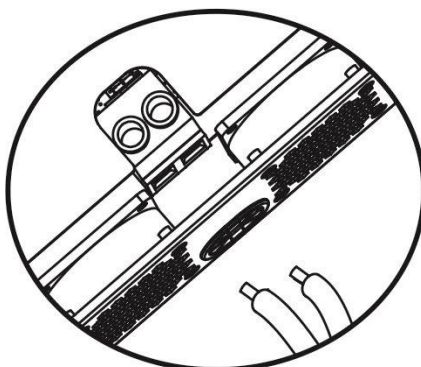
Model	Typical Amperage	Wire Size	Cable mm ² (each)	Ring Terminal		Torque Value
				Dimensions		
				D (mm)	L (mm)	
1.5KW	71A	1*6AWG	14	N/A		2 Nm
4KW	165A	2*4AWG	25	8.4	33.2	5 Nm
6KW	124A	1*2AWG	38	8.4	39.2	
		2*4AWG	25	8.4	33.2	

Please follow below steps to implement battery connection:

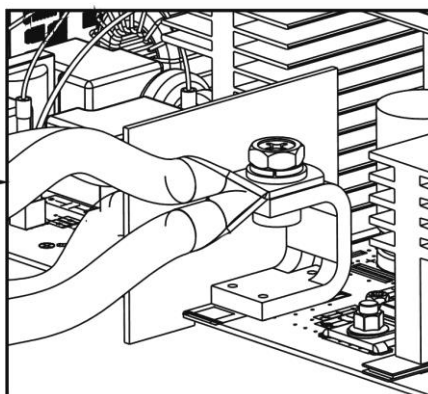
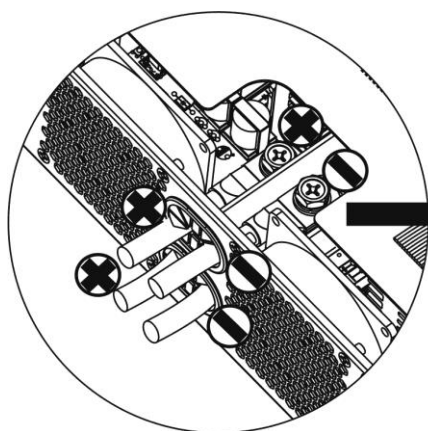
1. 1.5KW/4KW model supports 24VDC system and 6KW model supports 48VDC system. Connect all battery packs as below chart. It is recommend to connect minimum of 100Ah capacity battery for 1.5KW/4KW model and 200Ah capacity battery for 6KW model.



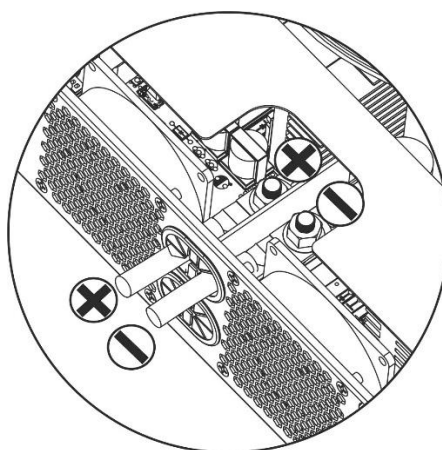
2. For the 1.5KW model, remove the insulation sleeve about 18mm for positive and negative wires. Prepare four battery wires for 4KW model and two or four battery wires for 6KW model depending on cable size (refer to recommended cable size table). Apply ring terminals to your battery wires and secure it to the battery terminal block with the bolts properly tightened. Refer to battery cable size for torque value. Make sure polarity at both the battery and the inverter is correctly connected and ring terminals are secured to the battery terminals.



1.5KW



4KW / 6KW



6KW



WARNING: Shock Hazard

Installation must be performed with care due to high battery voltage in series.



CAUTION!! Do not place anything between inverter terminals and the ring terminals. Otherwise, overheating may occur.

CAUTION!! Do not apply anti-oxidant substance on the terminals before terminals are securely tightened.

CAUTION!! Before making final DC connection or closing DC breaker/disconnector, be sure that the positive (+) must be connected to positive (+) and negative (-) connected to negative (-).

AC Input/Output Connection

CAUTION!! Before connecting to AC input power source, please install a **separate** AC breaker between the inverter and the AC input power source. This will ensure that the inverter can be safely disconnected during maintenance and fully protected from over-current. The recommended spec of AC breaker is 16A for 1.5KW, 32A for 4KW and 50A for 6KW.

CAUTION!! There are two power terminal blocks with "IN" (Input) and "OUT" (Output) markings. DO NOT mistakenly connect to the wrong connectors.

WARNING! All wiring must be performed by a qualified personnel.

WARNING! It's very important for system safety and efficient operation to use appropriate cable size for AC input connection. To reduce risk of injury, please use the proper recommended cable size as below.

Suggested cable requirement for AC wires

Model	Gauge	Cable (mm ²)	Torque Value
1.5KW	14 AWG	2.5	1.2 Nm
4KW	12 AWG	4	1.2 Nm
6KW	10 AWG	6	1.2 Nm

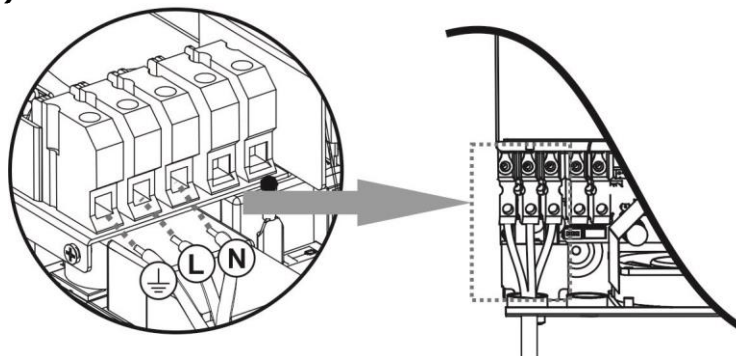
Please follow these steps to implement AC input/output connection:

1. Before making AC input/output connection, be sure to enable DC protector or disconnect first.
2. Remove insulation sleeves for about 10mm for the five screw terminals.
3. Insert AC input wires according to polarities indicated on terminal block and tighten the terminal screws. Be sure to connect the grounding wire (⊕) first.

⊕→**Ground (yellow-green)**

L→**LINE (brown or black)**

N→**Neutral (blue)**



WARNING:

Be sure that the AC power source is disconnected before attempting wire connections.

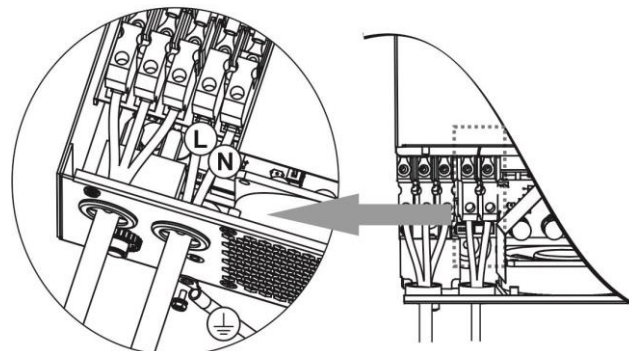
4. Insert AC output wires according to polarities indicated on terminal block and tighten terminal screws. Be sure to connect the grounding wire (⊕) first.

⊕→**Ground (yellow-green)**

L→**LINE (brown or black)**

N→**Neutral (blue)**

5. Make sure the wires are securely connected.



CAUTION: Appliances such as air conditioner required at least 2~3 minutes to spool up because it needs to have enough time to balance refrigerant gas inside of circuits. If a power shortage occurs and recovers in a short period of time, it may cause damage to your connected appliances. To prevent this from happening, please check with manufacturer of air conditioner if it has time-delay function before installation. Otherwise, this inverter will trigger overload fault and cut off output to protect your appliance but sometimes it may still causes damage to the air conditioner.

PV Connection

CAUTION: Before connecting to PV modules, please install a **separately** DC circuit breaker between the inverter and PV modules.

WARNING! It's very important for system safety and efficient operation to use appropriate cable for PV module connection. To reduce risk of injury, please use the proper recommended cable size shown below.

Model	Wire Size	Cable (mm ²)	Torque value (max)
1.5KW	1 x 14AWG	2.5	1.2 Nm
4KW/6KW	1 x 12AWG	4	1.2 Nm

WARNING: Because this inverter is non-isolated, are accepted: single crystalline, poly crystalline with class A-rated and CIGS modules. To avoid any malfunctions, do not connect any PV modules with possible current leakage to the inverter. For example, grounded PV modules will cause current leakage to the inverter. When using CIGS modules, please be sure NO grounding connection.

CAUTION: It's requested to use PV junction box with surge protection. Otherwise, it will cause damage on inverter when lightning occurs on PV modules.

PV Module Selection:

When selecting proper PV modules, please be sure to consider the following parameters:

1. Open circuit Voltage (Voc) of PV modules not to exceeds maximum PV array open circuit voltage of the inverter.
2. Open circuit Voltage (Voc) of PV modules should be higher than the start-up voltage.

* Open circuit Voltage (Voc) of PV modules should be higher than the start-up voltage.			
INVERTER MODEL	1.5KW	4KW	6KW
Max. PV Array Power	2000W	5000W	6000W
Max. PV Array Open Circuit Voltage	400Vdc	500Vdc	
PV Array MPPT Voltage Range	120Vdc~380Vdc	120Vdc~450Vdc	
Start-up Voltage	150Vdc +/- 10Vdc		

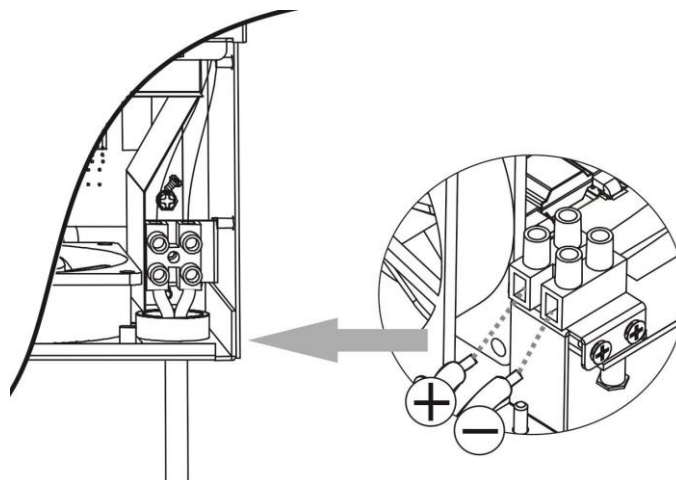
Take the 250Wp PV module as an example. After considering above two parameters, the recommended module configurations are listed in the table below.

Solar Panel Spec. (reference) - 250Wp - Vmp: 30.1Vdc - Imp: 8.3A - Voc: 37.7Vdc - Isc: 8.4A - Cells: 60	SOLAR INPUT		Q'ty of panels	Total input power
	For 1.5KW model, min. in series: 5 pcs, max. in series: 8 pcs. For 4KW/6KW models, min. in series: 6 pcs, max. in series: 12 pcs.			
	6 pcs in series		6 pcs	1500W
	8 pcs in series		8 pcs	2000W
	12 pcs in series		12 pcs	3000W
	8 pieces in series and 2 sets in parallel		16 pcs	4000W
	10 pieces in series and 2 sets in parallel		20 pcs	5000W
	11 pieces in series and 2 sets in parallel (only for 6KVA model)		22 pcs	5500W
	12 pieces in series and 2 sets in parallel (only for 6KVA model)		24 pcs	6000W

PV Module Wire Connection

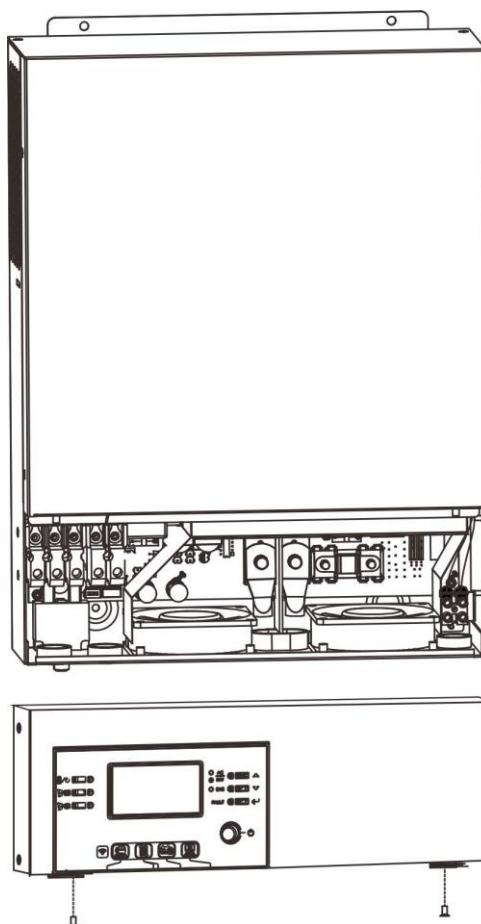
Please take the following to implement PV module connection:

1. Remove insulation sleeve for about 7 mm on your positive and negative wires.
2. We recommend using bootlace ferrules on the wires for optimal performance.
3. Check polarities of wire connections from PV modules to PV input screw terminals. Connect your wires as illustrated below.
Recommended tool: 4mm blade screwdriver



Final Assembly

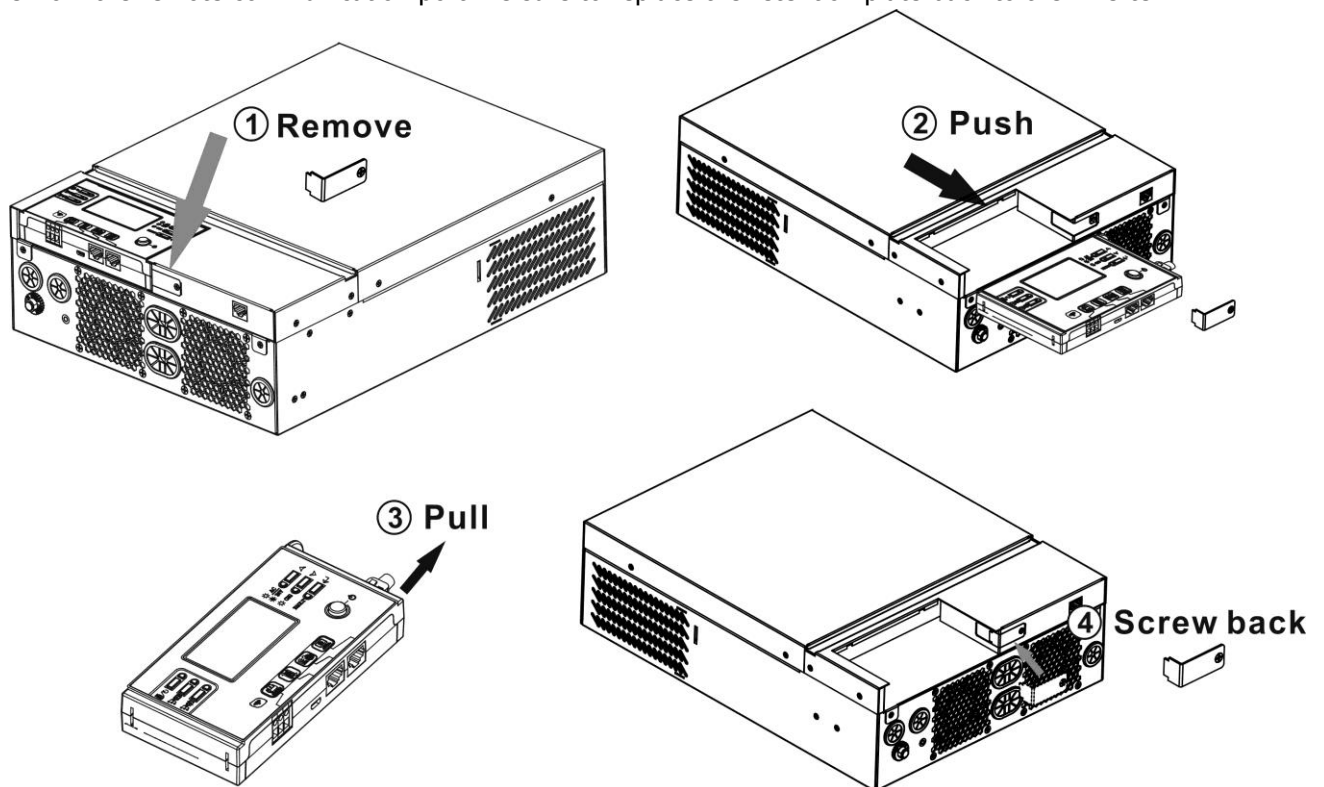
After connecting all wirings, replace the bottom cover as shown below.



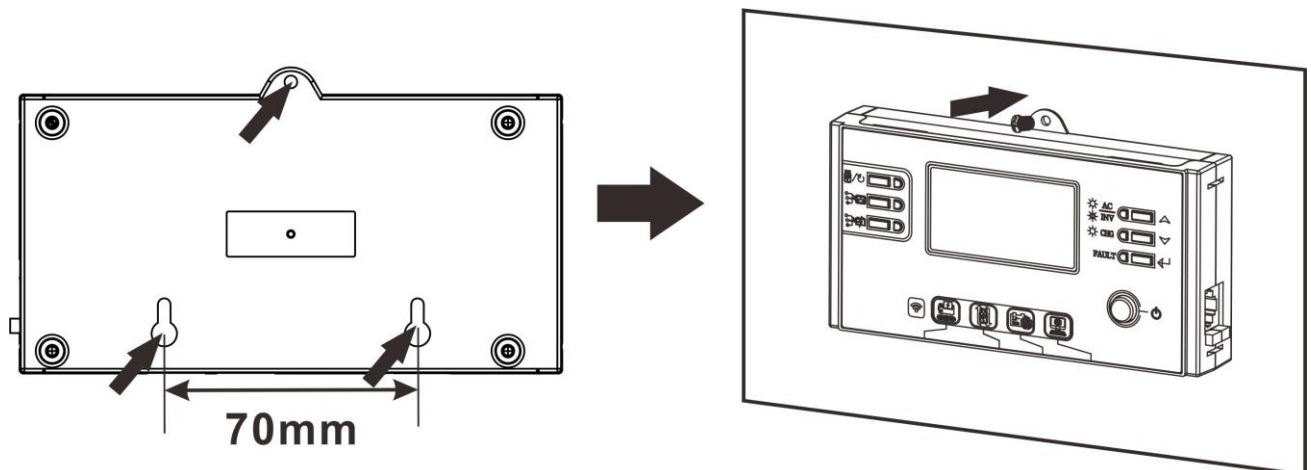
Remote Display Panel Installation

The LCD module can be removable and installed in a remote location with an optional communication cable. Please take the follow steps to implement this remote panel installation.

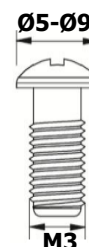
Step 1. Remove the screw on the bottom of LCD panel and pull down the module from the case. Detach the cable from the remote communication port. Be sure to replace the retention plate back to the inverter.



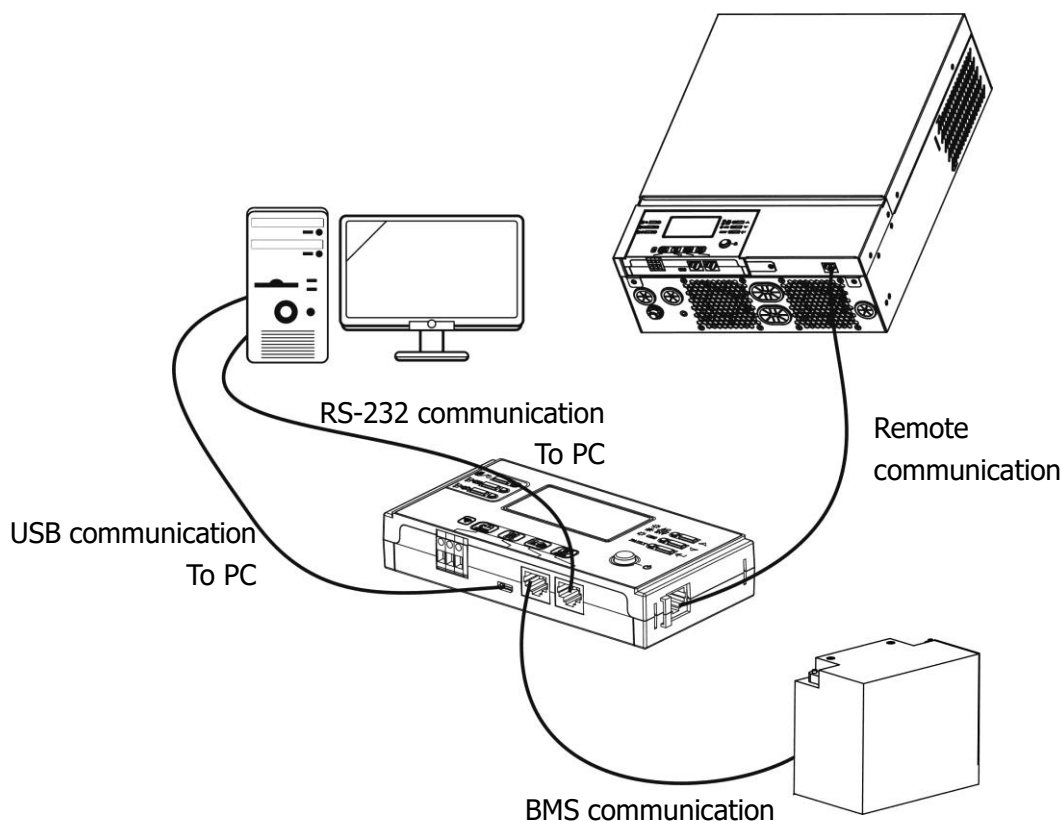
Step 2. Prepare your mounting holes in the marked locations as shown in the illustration below. The LCD module then can be securely mounted to your desired location.



Note: Wall installation should be implemented with the proper screws to the right.



Step 3. Connect LCD module to the inverter with an optional RJ45 communication cable as shown below.



Communication Options

Serial Connection

Please use the supplied serial cable to connect between the inverter and your PC. Install the monitoring software from the bundled CD and follow the on-screen instructions to complete your installation. For detailed software operation, refer to the software user manual on the bundled CD.

Wi-Fi Connection

This unit is equipped with a Wi-Fi transmitter. Wi-Fi transmitter can enable wireless communication between off-grid inverters and monitoring platform. Users can access and control the monitored inverter with downloaded APP. You may find "WatchPower" app from the Apple® Store or "WatchPower Wi-Fi" in Google® Play Store. All data loggers and parameters are saved in iCloud. For quick installation and operation, please check Appendix C.



BMS Communication

It is recommended to purchase a special communication cable if you are connecting to Lithium-Ion battery banks. Please refer to Appendix B- BMS Communication Installation for details.

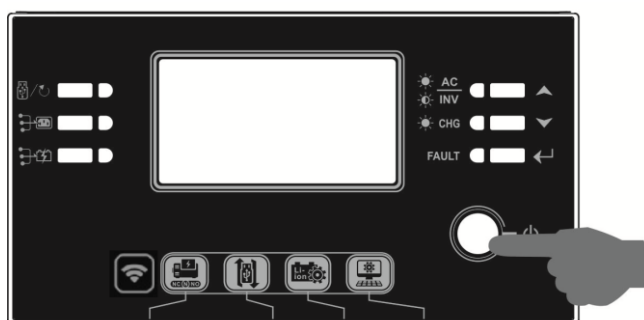
Dry Contact Signal

There is one dry contact (3A/250VAC) available on the rear panel. It could be used to deliver signal to external device when battery voltage reaches warning level.

Unit Status	Condition			 Dry contact port: NC C NO	
				NC & C	NO & C
Power Off	Unit is off and no output is powered.			Close	Open
Power On	Output is powered from Battery power or Solar energy.	Program 01 set as USB (utility first)	Battery voltage < Low DC warning voltage	Open	Close
			Battery voltage > Setting value in Program 13 or battery charging reaches floating stage	Close	Open
		Program 01 is set as SBU (SBU priority)	Battery voltage < Setting value in Program 12	Open	Close
			Battery voltage > Setting value in Program 13 or battery charging reaches floating stage	Close	Open

OPERATION

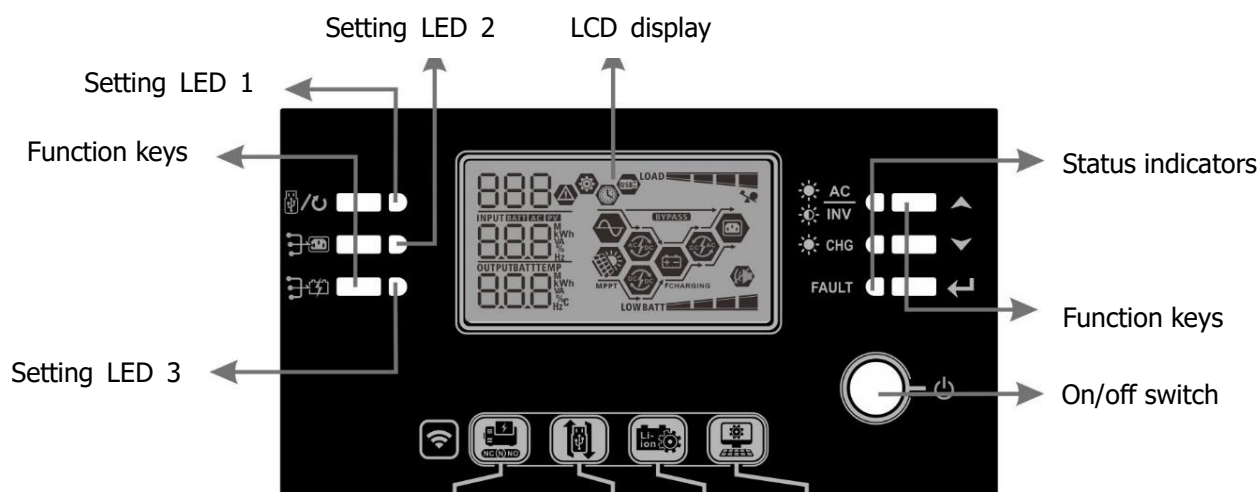
Power ON/OFF



Once the unit has been properly installed and the batteries are connected well, simply press On/Off switch (located on the LCD module) to turn on the unit.

Operation and Display Panel

The operation and the LCD module, shown in the chart below, includes six indicators, six function keys, on/off switch and a LCD display, indicating the operating status and input/output power information.



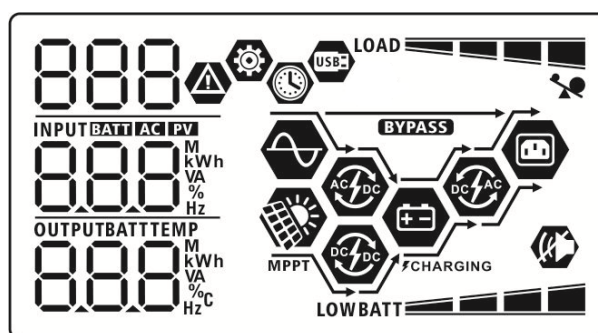
Indicators

LED Indicator		Color	Solid/Flashing	Messages
Setting LED 1		Green	Solid On	Output powered by utility
Setting LED 2		Green	Solid On	Output powered by PV
Setting LED 3		Green	Solid On	Output powered by battery
Status indicators	 AC/INV	Green	Solid On	Output is available in line mode
			Flashing	Output is powered by battery in battery mode
	 CHG	Green	Solid On	Battery is fully charged
			Flashing	Battery is charging.
	FAULT	Red	Solid On	Fault mode
			Flashing	Warning mode

Function Keys

Function Key	Description	
	ESC	Exit the setting
	USB function setting	Select USB OTG functions
	Timer setting for the Output source priority	Setup the timer for prioritizing the output source
	Timer setting for the Charger source priority	Setup the timer for prioritizing the charger source
	Up	To last selection
	Down	To next selection
	Enter	To confirm/enter the selection in setting mode

LCD Display Icons



Icon	Function description
Input Source Information	
	Indicates the AC input.
	Indicates the PV input
	Indicate input voltage, input frequency, PV voltage, charger current, charger power, battery voltage.
Configuration Program and Fault Information	
	Indicates the setting programs.
	Indicates the warning and fault codes. Warning:  flashing with warning code. Fault:  lighting with fault code
Output Information	
	Indicate output voltage, output frequency, load percent, load in VA, load in Watt and discharging current.
Battery Information	
	Indicates battery level by 0-24%, 25-49%, 50-74% and 75-100% in battery mode and charging status in line mode.

When battery is charging, it will present battery charging status.

Status	Battery voltage	LCD Display
Constant Current mode / Constant Voltage mode	<2V/cell	4 bars will flash in turns.
	2 ~ 2.083V/cell	Bottom bar will be on and the other three bars will flash in turns.
	2.083 ~ 2.167V/cell	Bottom two bars will be on and the other two bars will flash in turns.
	> 2.167 V/cell	Bottom three bars will be on and the top bar will flash.
Floating mode. Batteries are fully charged.		4 bars will be on.

In battery mode, it will present battery capacity.

Load Percentage	Battery Voltage	LCD Display
Load >50%	< 1.85V/cell	LOW BATT
	1.85V/cell ~ 1.933V/cell	BATT
	1.933V/cell ~ 2.017V/cell	BATT
	> 2.017V/cell	BATT
Load < 50%	< 1.892V/cell	LOW BATT
	1.892V/cell ~ 1.975V/cell	BATT
	1.975V/cell ~ 2.058V/cell	BATT
	> 2.058V/cell	BATT

Load Information

	Indicates overload.	
LOAD 	Indicates the load level by 0-24%, 25-49%, 50-74% and 75-100%.	
	0%~24%	25%~49%
	LOAD	LOAD
	50%~74%	75%~100%
	LOAD	LOAD

Mode Operation Information

	Indicates unit connects to the mains.
	Indicates unit connects to the PV panel.
BYPASS	Indicates load is supplied by utility power.
	Indicates the utility charger circuit is working.
	Indicates the solar charger circuit is working.
	Indicates the DC/AC inverter circuit is working.
	Indicates unit alarm is disabled.
	Indicates USB disk is connected.
	Indicates timer setting or time display

LCD Setting

General Setting

After pressing and holding "←" button for 3 seconds, the unit will enter the Setup Mode. Press "▲" or "▼" button to select setting programs. Press "←" button to confirm you selection or "⏏/↺" button to exit.

Setting Programs:

Program	Description	Selectable option	
00	Exit setting mode	Escape 00  ESC	
01	Output source priority: To configure load power source priority	Utility first (default) 01  USb	Utility will provide power to the loads as first priority. Solar and battery energy will provide power to the loads only when utility power is not available.
		Solar first 01  SUB	Solar energy provides power to the loads as first priority. If solar energy is not sufficient to power all connected loads, Utility energy will supply power to the loads at the same time.
		SBU priority 01  Sbu	Solar energy provides power to the loads as first priority. If solar energy is not sufficient to power all connected loads, battery energy will supply power to the loads at the same time. Utility provides power to the loads only when battery voltage drops to either low-level warning voltage or the setting point in program 12.
02	Maximum charging current: To configure total charging current for solar and utility chargers. (Max. charging current = utility charging current + solar charging current)	60A (default) 02  60 ^A	Setting range is from 10A to 60A for 1.5KW model and from 10A to 120A for 4KW/6KW models. Increment of each click is 10A.

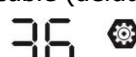
03	AC input voltage range	Appliances (default) 03  APL	If selected, acceptable AC input voltage range will be within 90-280VAC.
		UPS 03  UPS	If selected, acceptable AC input voltage range will be within 170-280VAC.
05	Battery type	AGM (default) 05  AGM	Flooded 05  FLD
		User-Defined 05  USE	If "User-Defined" is selected, battery charge voltage and low DC cut-off voltage can be set up in program 26, 27 and 29.
		Pylontech battery 05  PYL	If selected, programs of 02, 26, 27 and 29 will be automatically set up. No need for further setting.
		WECO battery (only for 48V model) 05  WEC	If selected, programs of 02, 12, 26, 27 and 29 will be auto-configured per battery supplier recommended. No need for further adjustment.
		Soltaro battery (only for 48V model) 05  SOL	If selected, programs of 02, 26, 27 and 29 will be automatically set up. No need for further setting.

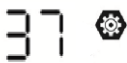
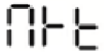
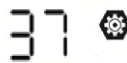
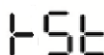
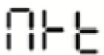
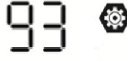
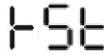
		LIb-protocol compatible battery 05  LIb	Select " LIb" if using Lithium battery compatible to Lib protocol. If selected, programs of 02, 26, 27 and 29 will be automatically set up. No need for further setting.
		3 rd party Lithium battery 05  LIC	If selected, programs of 02, 26, 27 and 29 will be automatically set up. No need for further setting. Please contact the battery supplier for installation procedure.
06	Auto restart when overload occurs	Restart disable (default) 06  LTd	Restart enable 06  LT E
07	Auto restart when over temperature occurs	Restart disable (default) 07  tTd	Restart enable 07  tT E
09	Output frequency	50Hz (default) 09  50 _{Hz}	60Hz 09  60 _{Hz}
10	Output voltage	220V 10  220 _v	230V (default) 10  230 _v
		240V 10  240 _v	
11	Maximum utility charging current Note: If setting value in program 02 is smaller than that in program in 11, the inverter will apply charging current from program 02 for utility charger.	30A (default) 11  Uti 30 _A	Setting range is 2A, then from 10A to 40A for 1.5KW model and from 10A to 100A for 4KW/6KW models. Increment of each click is 10A.

12	Setting voltage point back to utility source when selecting "SBU" (SBU priority) in program 01.	Available options for 24V model:	
		23.0V (default) 12 	Setting range is from 22V to 25.5V. Increment of each click is 0.5V.
		 230 ^v	
		Available options for 48V model:	
13	Setting voltage point back to battery mode when selecting "SBU" (SBU priority) in program 01.	12 	Setting range is from 44V to 51V. Increment of each click is 1V.
		 46 ^v	
		Available options for 24V model:	
		Battery fully charged 13 	27V (default) 13 
16	Charger source priority: To configure charger source priority	 FUL ^v	 270 ^v
		Setting range is from 24V to 29V. Increment of each click is 0.5V.	
		Available options for 48V model:	
		Battery fully charged 13 	54V (default) 13 
16	Charger source priority: To configure charger source priority	 FUL ^v	 54 ^v
		Setting range is from 48V to 58V. Increment of each click is 1V.	
		If this inverter/charger is working in Line, Standby or Fault mode, charger source can be programmed as below:	
		Solar first 16 	Solar energy will charge battery as first priority. Utility will charge battery only when solar energy is not available.
16	Charger source priority: To configure charger source priority	C50	
		Solar and Utility (default) 16 	Solar energy and utility will charge battery at the same time.
16	Charger source priority: To configure charger source priority	SNU	

		Only Solar 16 	Solar energy will be the only charger source no matter utility is available or not.
		050	If this inverter/charger is working in Battery mode, only solar energy can charge battery. Solar energy will charge battery if it's available and sufficient.
18	Alarm control	Alarm on (default) 18 	Alarm off
		60N	18  60F
19	Auto return to default display screen	Return to default display screen (default) 19 	If selected, no matter how users switch display screen, it will automatically return to default display screen (Input voltage /output voltage) after no button is pressed for 1 minute.
		Stay at latest screen 19 	If selected, the display screen will stay at latest screen user finally switches.
	Backlight control	Backlight on (default) 20 	Backlight off
		L0N	20  L0F
22	Beeps while primary source is interrupted	Alarm on (default) 22 	Alarm off
		A0N	22  A0F

23	Overload bypass: When enabled, the unit will transfer to line mode if overload occurs in battery mode.	Bypass disable (default) 23 bYd	Bypass enable 23 bYE
25	Record Fault code	Record enable (default) 25 FEN	Record disable 25 FdS
26	Bulk charging voltage (C.V voltage)	1.5KW/4KW default setting: 28.2V 26 Cu BATT 28.2 _v	6KW default setting: 56.4V 26 Cu BATT 56.4 _v
		If self-defined is selected in program 5, this program can be set up. Setting range is from 25.0V to 31.5V for 1.5KW/4KW models and 48.0V to 61.0V for 6KW model. Increment of each click is 0.1V.	
27	Floating charging voltage	1.5KW/4KW default setting: 27.0V 27 FLU BATT 27.0 _v	6KW default setting: 54.0V 27 FLU BATT 54.0 _v
		If self-defined is selected in program 5, this program can be set up. Setting range is from 25.0V to 31.5V for 1.5KW/4KW models and 48.0V to 61.0V for 6KW model. Increment of each click is 0.1V.	
29	Low DC cut-off voltage: ● If battery power is only power source available, inverter will shut down. ● If PV energy and battery power are available, inverter will charge battery without AC output.	1.5KW/4KW default s setting: 21.0V 29 CU BATT 21.0 _v	6KW default setting: 42.0V 29 CU BATT 42.0 _v

	If PV energy, battery power and utility are all available, inverter will transfer to line mode and provide output power to loads.	If self-defined is selected in program 5, this program can be set up. Setting range is from 21.0V to 24.0V for 1.5KW/4KW models and 42.0V to 48.0V for 6KW model. Increment of each click is 0.1V. Low DC cut-off voltage will be fixed to setting value no matter what percentage of load is connected.	
30	Battery equalization	Battery equalization  	Battery equalization disable (default)  
		If "Flooded" or "User-Defined" is selected in program 05, this program can be set up.	
31	Battery equalization voltage	1.5KW/4KW default setting: 29.2V   	6KW default setting: 58.4V   
		Setting range is from 25.0V to 31.5V for 1.5KW/4KW models and 48.0V to 61.0V for 6KW model. Increment of each click is 0.1V.	
33	Battery equalized time	60min (default)  	Setting range is from 5min to 900min. Increment of each click is 5min.
34	Battery equalized timeout	120min (default)  	Setting range is from 5min to 900 min. Increment of each click is 5 min.
35	Equalization interval	30days (default)  	Setting range is from 0 to 90 days. Increment of each click is 1 day
36	Equalization activated immediately	Enable  	Disable (default)  

		If equalization function is enabled in program 30, this program can be set up. If "Enable" is selected in this program, it's to activate battery equalization immediately and LCD main page will shows "E9". If "Disable" is selected, it will cancel equalization function until next activated equalization time arrives based on program 35 setting. At this time, "E9" will not be shown in LCD main page.	
37	Reset all stored data for PV generated power and output load energy	Not reset(Default)  	Reset  
93	Erase all data log	Not reset(Default)  	Reset  
94	Data log recorded interval *The maximum data log number is 1440. If it's over 1440, it will re-write the first log.	3 minutes  	5 minutes  
		10 minutes (default)  	20 minutes  
		30 minutes  	60 minutes  
95	Time setting – Minute	For minute setting, the range is from 0 to 59.   	
96	Time setting – Hour	For hour setting, the range is from 0 to 23.   	

97	Time setting– Day	For day setting, the range is from 1 to 31. 
98	Time setting– Month	For month setting, the range is from 1 to 12. 
99	Time setting – Year	For year setting, the range is from 17 to 99. 

Functional Setting

There are three function keys on the display panel to implement special functions such as USB OTG, timer setting for output source priority and timer setting for charger source priority.

1. USB Function Setting

Insert an OTG USB disk into the USB port () . Press and hold "/U" button for 3 seconds to enter USB Setup Mode. These functions including inverter firmware upgrade, data log export and internal parameters re-write from the USB disk.

Procedure	LCD Screen
Step 1: Press and hold "  /U" button for 3 seconds to enter USB function setting mode.	
Step 2: Press "  /U", "  " or "  " button to enter the selectable setting programs (detail descriptions in Step 3)..	

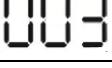
Step 3: Please select setting program by following the procedure.

Program#	Operation Procedure	LCD Screen
 /U: Upgrade firmware	This function is to upgrade inverter firmware. If firmware upgrade is needed, please check with your dealer or installer for detail instructions.	
 : Re-write internal parameters	This function is to over-write all parameter settings (TEXT file) with settings in the On-The-Go USB disk from a previous setup or to duplicate inverter settings. Please check with your dealer or installer for detail instructions.	
 : Export data log	By pressing "  " button to export data log from the inverter to USB disk. If the selected function is ready, LCD will display "t dy". Press "  /U" button to confirm the selection again.	

- Press " button to select "Yes", LED 1 will flash once every second during the process. It will only display  and all LEDs will be on after this action is complete. Then, press " button to return to main screen. - Or press " button to select "No" to return to main screen.	
--	---

If no button is pressed for 1 minute, it will automatically return to main screen.

Error message for USB On-The-Go functions:

Error Code	Messages
	No USB disk is detected.
	USB disk is protected from copying.
	Document inside the USB disk contains the wrong format.

If any error occurs, error code will only show for 3 seconds. After 3 seconds, it will automatically return to the main screen.

2. Timer Setting for Output Source Priority

This timer setting is to set up the output source priority per day.

Procedure	LCD Screen
Step 1: Press and hold "  button for 3 seconds to enter Timer Setup Mode for output source priority.	
Step 2: Press "  , "  or "  button to enter the selectable programs (detail descriptions in Step 3).	

Step 3: Please select setting program by following each procedure.

Program#	Operation Procedure	LCD Screen
	Press "  button to set up Utility First Timer. Press "  button to select starting time. Press "  or "  button to adjust values and press "  to confirm. Press "  button to select end time. Press "  or "  button to adjust values, press "  button to confirm. The setting values are from 00 to 23, with 1-hour increment.	
	Press "  button to set up Solar First Timer. Press "  button to select starting time. Press "  or "  button to adjust values and press "  to confirm. Press "  button to select end time. Press "  or "  button to adjust values, press "  button to confirm. The setting values are from 00 to 23, with 1-hour increment.	
	Press "  button to set up SBU Priority Timer. Press "  button to select starting time. Press "  or "  button to adjust values and press "  to confirm. Press "  button to select end time. Press "  or "  button to adjust values, press "  button to confirm. The setting values are from 00 to 23, with 1-hour increment.	

Press " button to exit the Setup Mode.

3. Timer Setting for the Charger Source Priority

This timer setting is to set up the charger source priority per day.

Procedure	LCD Screen
Step 1: Press and hold "☀️/🔌" button for 3 seconds to enter Timer Setup Mode for charging source priority.	
Step 2: Press "☀️/🔌", "☀️/🔌", or "☀️/🔌" button to enter the selectable programs (detail descriptions in Step 3).	

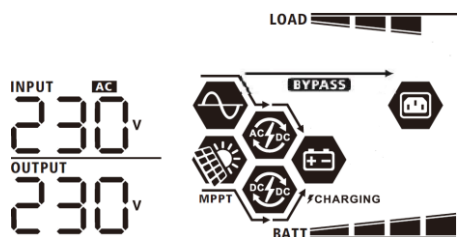
Step 3: Please select setting program by following each procedure.

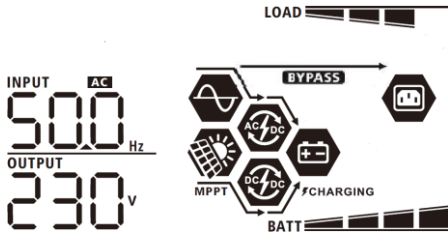
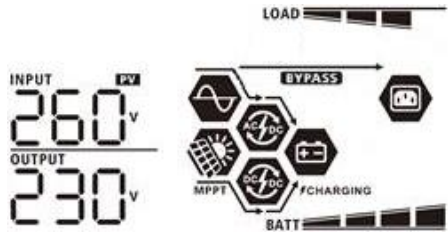
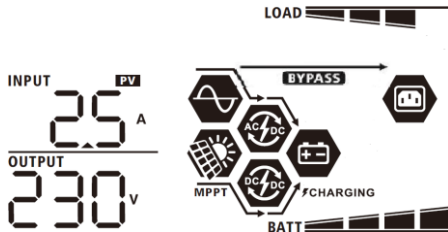
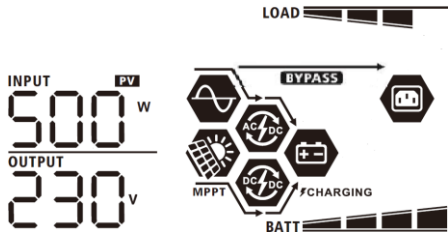
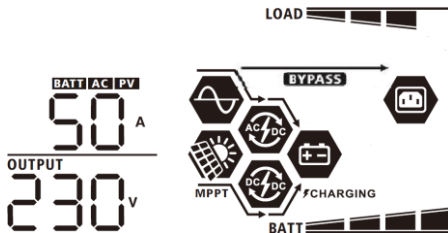
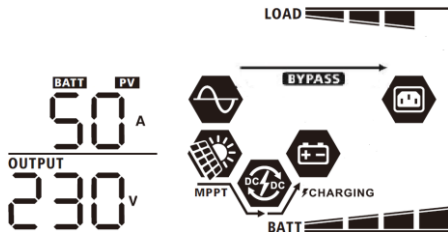
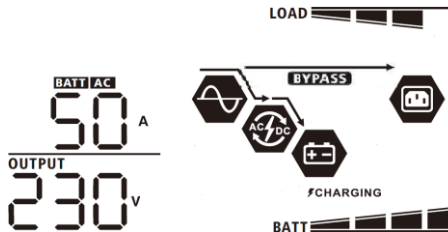
Program#	Operation Procedure	LCD Screen
☀️/🔌	Press "☀️/🔌" button to set up Solar First Timer. Press "☀️/🔌" button to select starting time. Press "▲" or "▼" button to adjust values and press "↵" to confirm. Press "☀️/🔌" button to select end time. Press "▲" or "▼" button to adjust values, press "↵" button to confirm. The setting values are from 00 to 23, with 1-hour increment.	
☀️/🔌	Press "☀️/🔌" button to set up Solar & Utility Timer. Press "☀️/🔌" button to select starting time. Press "▲" or "▼" button to adjust values and press "↵" to confirm. Press "☀️/🔌" button to select end time. Press "▲" or "▼" button to adjust values, press "↵" button to confirm. The setting values are from 00 to 23, with 1-hour increment.	
☀️/🔌	Press "☀️/🔌" button to set up Solar Only Timer. Press "☀️/🔌" button to select starting time. Press "▲" or "▼" button to adjust values and press "↵" to confirm. Press "☀️/🔌" button to select end time. Press "▲" or "▼" button to adjust values, press "↵" button to confirm. The setting values are from 00 to 23, with 1-hour increment.	

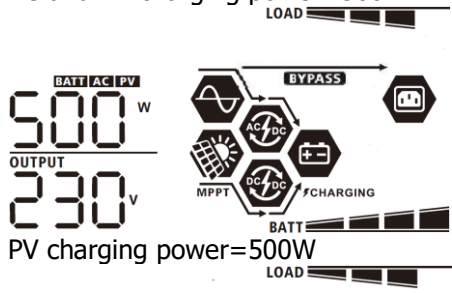
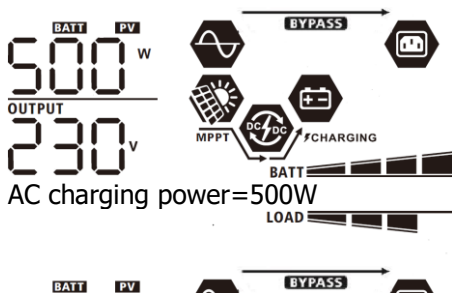
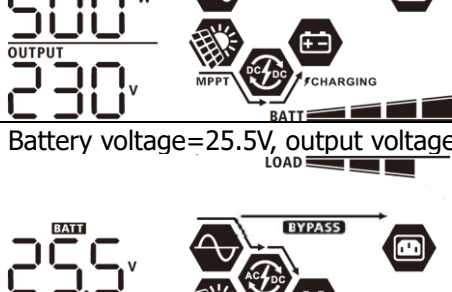
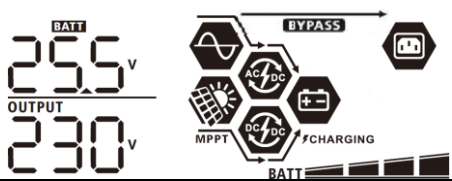
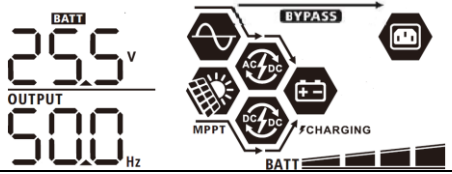
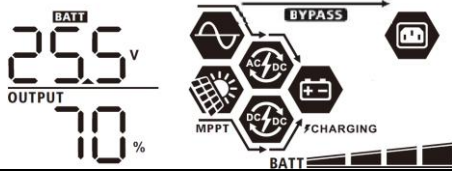
Press "☀️/🔌" button to exit the Setup Mode.

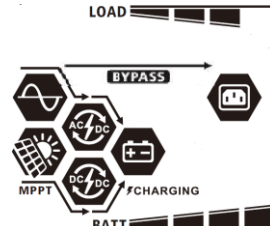
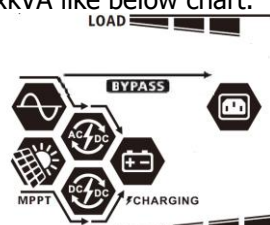
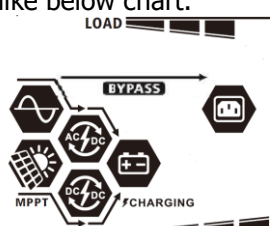
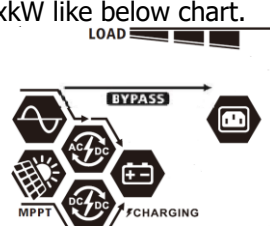
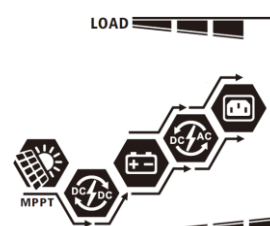
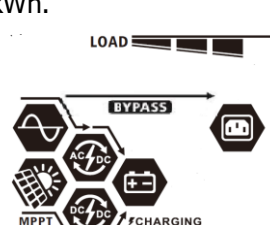
Display Setting

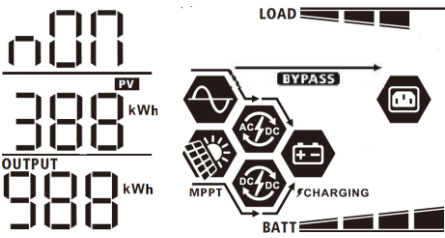
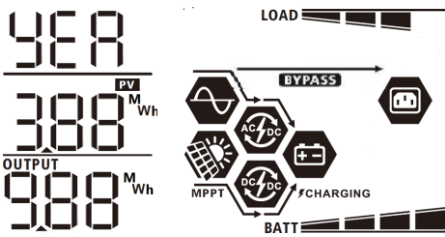
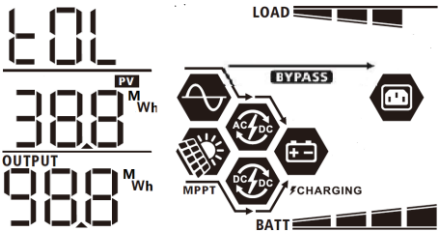
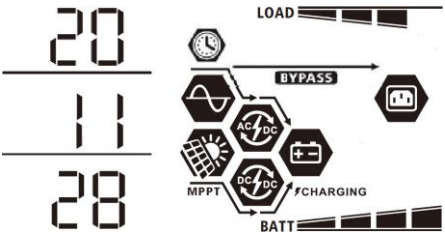
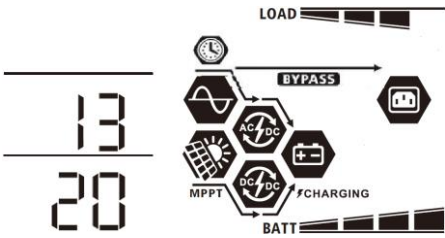
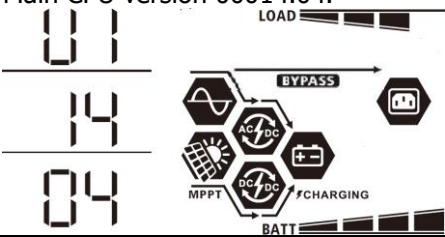
The LCD display information will be switched in turn by pressing the "UP" or "DOWN" button. The selective information will be switched as per the following orders:

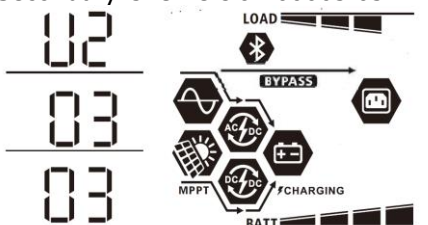
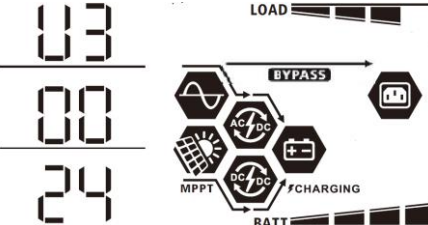
Selectable information	LCD display
Input voltage/Output voltage (Default Display Screen)	Input Voltage=230V, output voltage=230V 

Input frequency	Input frequency=50Hz 
PV voltage	PV voltage=260V 
PV current	PV current = 2.5A 
PV power	PV power = 500W 
Charging current	AC and PV charging current=50A  PV charging current=50A  AC charging current=50A 

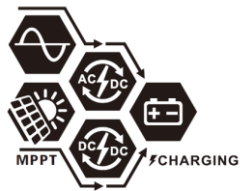
Charging power	AC and PV charging power=500W  PV charging power=500W  AC charging power=500W 
Battery voltage and output voltage	Battery voltage=25.5V, output voltage=230V 
Output frequency	Output frequency=50Hz 
Load percentage	Load percent=70% 

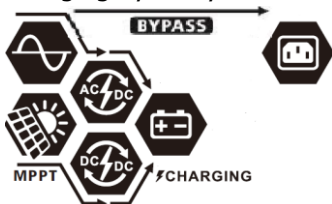
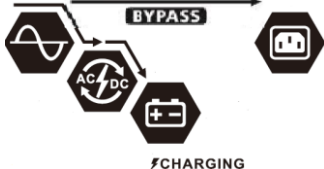
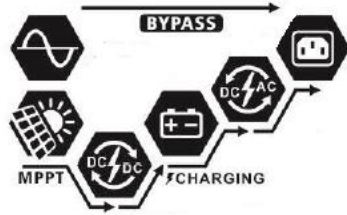
Load in VA	When connected load is lower than 1kVA, load in VA will present xxxVA like below chart.  25.5 V OUTPUT 350 VA When load is larger than 1kVA ($\geq 1\text{kVA}$), load in VA will present x.xkVA like below chart.  25.5 V OUTPUT 150 kVA
Load in Watt	When load is lower than 1kW, load in W will present xxxW like below chart.  25.5 V OUTPUT 270 W When load is larger than 1kW ($\geq 1\text{kW}$), load in W will present x.xkW like below chart.  25.5 V OUTPUT 120 kW
Battery voltage/DC discharging current	Battery voltage=25.5V, discharging current=1A  25.5 V BATT 1 A
PV energy generated today and Load output energy today	This PV Today energy = 3.88kWh, Load Today energy= 9.88kWh.  884 PV 388 kWh OUTPUT 988 kWh

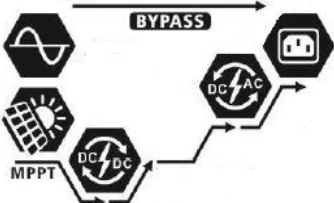
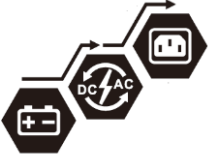
PV energy generated this month and Load output energy this month.	This PV month energy = 388kWh, Load month energy= 988kWh. 
PV energy generated this year and Load output energy this year.	This PV year energy = 3.88MWh, Load year energy = 9.88MWh. 
PV energy generated totally and Load output total energy.	PV Total energy = 38.8MWh, Load Output Total energy = 98.8MWh. 
Real date.	Real date Nov 28, 2020. 
Real time.	Real time 13:20. 
Main CPU version checking.	Main CPU version 00014.04. 

Secondary CPU version checking.	Secondary CPU version 00003.03. 
Wi-Fi version checking.	Wi-Fi version 00000.24. 

Operating Mode Description

Operation mode	Description	LCD display
Standby mode Note: *Standby mode: The inverter is not turned on yet but at this time, the inverter can charge battery without AC output.	No output is supplied by the unit but it still can charge batteries.	Charging by utility and PV energy. 
		Charging by utility. 
		Charging by PV energy. 
		No charging. 

Operation mode	Description	LCD display
Fault mode Note: *Fault mode: Errors are caused by inside circuit error or external reasons such as over temperature, output short circuited and so on.	No charging at all no matter if grid or PV power is available.	Grid and PV power are available. 
		Grid is available. 
		PV power is available. 
		No charging. 
Line Mode	The unit will provide output power from the mains. It will also charge the battery at line mode.	Charging by utility and PV energy. 
		Charging by utility. 
		If "SUB" (solar first) is selected as output source priority and solar energy is not sufficient to provide the load, solar energy and the utility will provide the loads and charge the battery at the same time. 

Operation mode	Description	LCD display
Line Mode	The unit will provide output power from the mains. It will also charge the battery at line mode.	If either "SUB" (solar first) or "SBU" is selected as output source priority and battery is not connected, solar energy and the utility will provide the loads. 
		Power from utility. 
Battery Mode	The unit will provide output power from battery and/or PV power.	Power from battery and PV energy. 
		PV energy will supply power to the loads and charge battery at the same time. No utility is available. 
		Power from battery only. 
		Power from PV energy only. 

Battery Equalization Description

Battery equalization function is built into the charge controller. It reverses the buildup of negative chemical effects such as stratification, a condition where acid concentration is greater at the bottom of the battery than at the top. Equalization also helps to remove sulfate crystals that may have built up on the plates. If left unchecked, this condition, called sulfation, will reduce the overall capacity of the battery. Therefore, it's recommended to equalize the battery periodically.

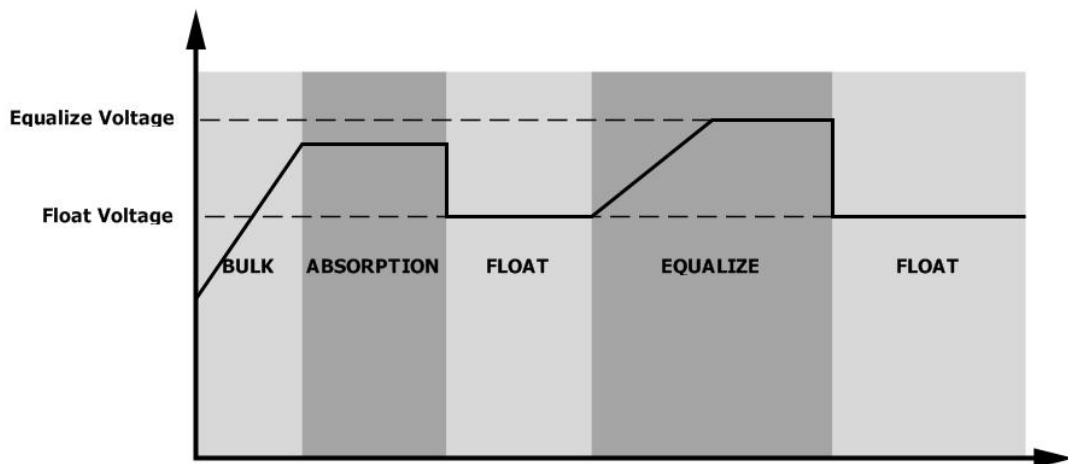
● How to Activate Equalization Function

You must enable battery equalization function in LCD setting Program 30 first. You can then apply this function by either one of the following methods:

1. Setting equalization interval in Program 35.
2. Activate equalization immediately in Program 36.

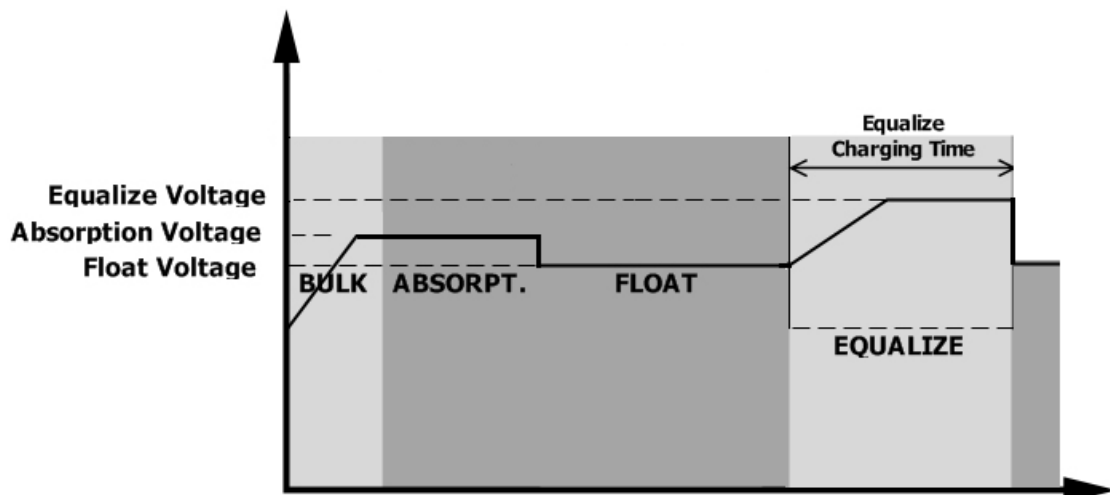
● When to Equalize

In floating charge stage, when setting the equalization interval (battery equalization cycle) is reached, or equalization is activated immediately, the controller will start to enter Equalize Mode.



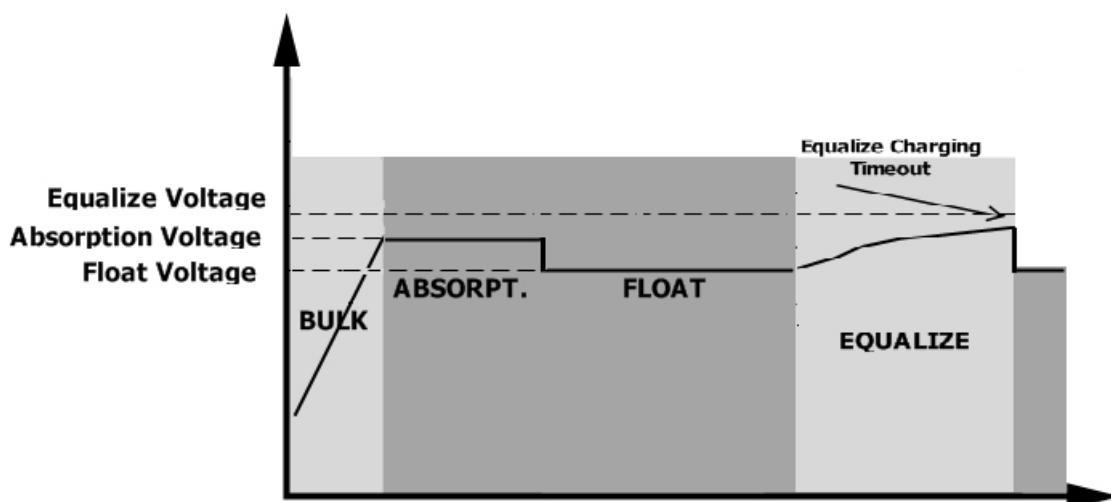
● Equalize Charging and Timeout

In Equalize Mode, the controller will supply power to charge battery as much as possible until battery voltage reach the equalization voltage. Then, constant-voltage regulation is applied to maintain battery voltage at the equalization level. The battery will remain in the Equalize Mode until the equalization timer runs out.



However, in Equalize Mode, if the battery equalization timer runs out and the battery voltage doesn't recover to

the battery equalization voltage point, the charge controller will extend the battery equalized time until battery voltage achieves equalization voltage. If the battery voltage is still lower than equalization voltage when the extension runs out, the charge controller will stop equalization and return to the floating charging stage.



Fault Reference Code

Fault Code	Fault Event	Icon on
01	Fan is locked when inverter is off.	F01
02	Over temperature	F02
03	Battery voltage is too high	F03
04	Battery voltage is too low	F04
05	Output short circuited or over temperature is detected by internal converter components.	F05
06	Output voltage is too high.	F06
07	Overload time out	F07
08	Bus voltage is too high	F08
09	Bus soft start failed	F09
51	Over current or surge	F51
52	Bus voltage is too low	F52
53	Inverter soft start failed	F53
55	Over DC voltage in AC output	F55
57	Current sensor failed	F57
58	Output voltage is too low	F58
59	PV voltage is over limitation	F59

Warning Indicator

Warning Code	Warning Event	Audible Alarm	Icon flashing
01	Fan is locked when inverter is on.	Beep three times every second	01 
02	Over temperature	None	02 
03	Battery is over-charged	Beep once every second	03 
04	Low battery	Beep once every second	04 
07	Overload	Beep once every 0.5 second	07  
10	Output power derating	Beep twice every 3 seconds	10 
15	PV energy is low.	Beep twice every 3 seconds	15 
16	High AC input (>280VAC) during BUS soft start	None	16 
32	Communication failure between inverter and remote display panel	None	32 
E9	Battery equalization	None	E9 
bP	Battery is not connected	None	bP 

SPECIFICATIONS

Table 1 Line Mode Specifications

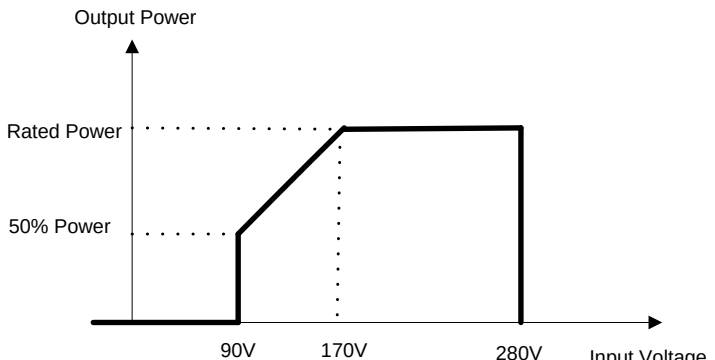
INVERTER MODEL	1.5KW	4KW	6KW
Input Voltage Waveform	Sinusoidal (utility or generator)		
Nominal Input Voltage	230Vac		
Low Loss Voltage	170Vac $\pm$ 7V (UPS); 90Vac $\pm$ 7V (Appliances)		
Low Loss Return Voltage	180Vac $\pm$ 7V (UPS); 100Vac $\pm$ 7V (Appliances)		
High Loss Voltage	280Vac $\pm$ 7V		
High Loss Return Voltage	270Vac $\pm$ 7V		
Max AC Input Voltage	300Vac		
Nominal Input Frequency	50Hz / 60Hz (Auto detection)		
Low Loss Frequency	40 $\pm$ 1Hz		
Low Loss Return Frequency	42 $\pm$ 1Hz		
High Loss Frequency	65 $\pm$ 1Hz		
High Loss Return Frequency	63 $\pm$ 1Hz		
Output Short Circuit Protection	Circuit Breaker		
Efficiency (Line Mode)	>95% (Rated R load, battery full charged)		
Transfer Time	10ms typical (UPS); 20ms typical (Appliances)		
Output power derating: When AC input voltage drops to 170V, the output power will be derated.			

Table 2 Inverter Mode Specifications

INVERTER MODEL	1.5KW	4KW	6KW
Rated Output Power	1.5KVA/1.5KW	4KVA/4KW	6KVA/6KW
Output Voltage Waveform	Pure Sine Wave		
Output Voltage Regulation	230Vac±10%		
Output Frequency	50Hz		
Peak Efficiency	93%		
Overload Protection	5s@≥130% load; 10s@105%~130% load	5s@≥110% load; 10s@105%~110% load	
Surge Capacity	2* rated power for 5 seconds		
Nominal DC Input Voltage	24Vdc		48Vdc
Cold Start Voltage	23.0Vdc		46.0Vdc
Low DC Warning Voltage @ load < 50% @ load ≥ 50%	23.0Vdc 22.0Vdc		46.0Vdc 44.0Vdc
Low DC Warning Return Voltage @ load < 50% @ load ≥ 50%	23.5Vdc 23.0Vdc		47.0Vdc 46.0Vdc
Low DC Cut-off Voltage @ load < 50% @ load ≥ 50%	21.5Vdc 21.0Vdc		43.0Vdc 42.0Vdc
High DC Recovery Voltage	32Vdc		62Vdc
High DC Cut-off Voltage	33Vdc		63Vdc
No Load Power Consumption	<35W	<40W	<50W

Table 3 Charge Mode Specifications

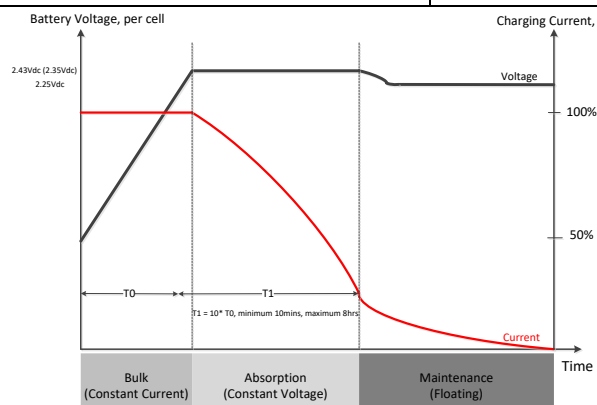
Utility Charging Mode				
INVERTER MODEL		1.5KW	4KW	6KW
Charging Algorithm		3-Step		
AC Charging Current (Max)		40Amp (@V _{I/P} =230Vac)	100Amp (@V _{I/P} =230Vac)	
Bulk Charging Voltage	Flooded Battery	29.2Vdc		58.4Vdc
	AGM / Gel Battery	28.2Vdc		56.4Vdc
Floating Charging Voltage		27Vdc		54Vdc
Charging Curve				
MPPT Solar Charging Mode				
INVERTER MODEL		1.5KW	4KW	6KW
Max. PV Array Power		2000W	5000W	6000W
Nominal PV Voltage		240Vdc	320Vdc	360Vdc
Start-up Voltage		150Vdc +/- 10Vdc		
PV Array MPPT Voltage Range		120~380Vdc	120~450Vdc	
Max. PV Array Open Circuit Voltage		400Vdc	500Vdc	
Max Charging Current (AC charger plus solar charger)		60Amp	120Amp	

Table 4 General Specifications

INVERTER MODEL	1.5KW	4KW	6KW
Operating Temperature Range	-10°C to 50°C		
Storage temperature	-15°C~ 60°C		
Humidity	5% to 95% Relative Humidity (Non-condensing)		
Dimension (D*W*H), mm	100 x 280 x 390	115 x 300 x 400	
Net Weight, kg	8.5	9	10

TROUBLE SHOOTING

Problem	LCD/LED/Buzzer	Explanation / Possible cause	What to do
Unit shuts down automatically during startup process.	LCD/LEDs and buzzer will be active for 3 seconds and then complete off.	The battery voltage is too low (<1.91V/Cell)	1. Re-charge battery. 2. Replace battery.
No response after power on.	No indication.	1. The battery voltage is far too low. (<1.4V/Cell) 2. Internal fuse tripped.	1. Contact repair center for replacing the fuse. 2. Re-charge battery. 3. Replace battery.
Mains exist but the unit works in battery mode.	Input voltage is displayed as 0 on the LCD and green LED is flashing.	Input protector is tripped	Check if AC breaker is tripped and AC wiring is connected well.
	Green LED is flashing.	Insufficient quality of AC power. (Shore or Generator)	1. Check if AC wires are too thin and/or too long. 2. Check if generator (if applied) is working well or if input voltage range setting is correct. (UPS→Appliance)
	Green LED is flashing.	Set "SUB" (solar first) as the priority of output source.	Change output source priority to "USB" (utility first).
When the unit is turned on, internal relay is switched on and off repeatedly.	LCD display and LEDs are flashing	Battery is disconnected.	Check if battery wires are connected well.
Buzzer beeps continuously and red LED is on.	Fault code 07	Overload error. The inverter is overload 110% and time is up.	Reduce the connected load by switching off some equipment.
		If PV input voltage is higher than specification, the output power will be derated. At this time, if connected loads is higher than derated output power, it will cause overload.	Reduce the number of PV modules in series or the connected load.
	Fault code 05	Output short circuited.	Check if wiring is connected well and remove abnormal load.
		Temperature of internal converter component is over 120°C.	Check whether the air flow of the unit is blocked or whether the ambient temperature is too high.
	Fault code 02	Internal temperature of inverter component is over 100°C.	
	Fault code 03	Battery is over-charged.	Return to repair center.
		The battery voltage is too high.	Check if spec and quantity of batteries are meet requirements.
	Fault code 01	Fan fault	Replace the fan.
	Fault code 06/58	Output abnormal (Inverter voltage below than 190Vac or is higher than 260Vac)	1. Reduce the connected load. 2. Return to repair center
	Fault code 08/09/53/57	Internal components failed.	Return to repair center.
	Fault code 51	Over current or surge.	Restart the unit, if the error happens again, please return to repair center.
	Fault code 52	Bus voltage is too low.	
	Fault code 55	Output voltage is unbalanced.	
	Fault code 59	PV input voltage is beyond the specification.	Reduce the number of PV modules in series.

Appendix A: Approximate Back-up Time Table

Model	Load (VA)	Backup Time @ 24Vdc 100Ah (min)	Backup Time @ 24Vdc 200Ah (min)
1.5KW	150	908	2224
	300	449	1100
	450	338	815
	600	222	525
	750	177	414
	900	124	303
	1050	110	269
	1200	95	227
	1350	82	198
	1500	68	164

Model	Load (VA)	Backup Time @ 24Vdc 100Ah (min)	Backup Time @ 24Vdc 200Ah (min)
4KW	300	449	1100
	600	222	525
	900	124	303
	1200	95	227
	1500	68	164
	1800	56	126
	2100	48	108
	2400	35	94
	2700	31	74
	3000	28	67
	3300	25	59
	3600	22	50
	4000	17	38

Model	Load (VA)	Backup Time @ 48Vdc 100Ah (min)	Backup Time @ 48Vdc 200Ah (min)
6KW	500	613	1288
	1000	268	613
	1500	158	402
	2000	111	271
	2500	90	215
	3000	76	182
	3500	65	141
	4000	50	112
	4500	44	100
	5000	40	90
	5500	36	81
	6000	33	73

Note: Backup time depends on the quality of the battery, age of battery and type of battery.
Specifications of batteries may vary depending on different manufacturers

Appendix B: BMS Communication Installation

1. Introduction

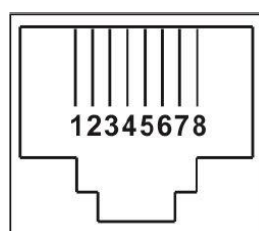
If connecting to lithium battery, it is recommended to purchase a custom-made RJ45 communication cable. Please check with your dealer or integrator for details.

This custom-made RJ45 communication cable delivers information and signal between lithium battery and the inverter. These information are listed below:

- Re-configure charging voltage, charging current and battery discharge cut-off voltage according to the lithium battery parameters.
- Have the inverter start or stop charging according to the status of lithium battery.

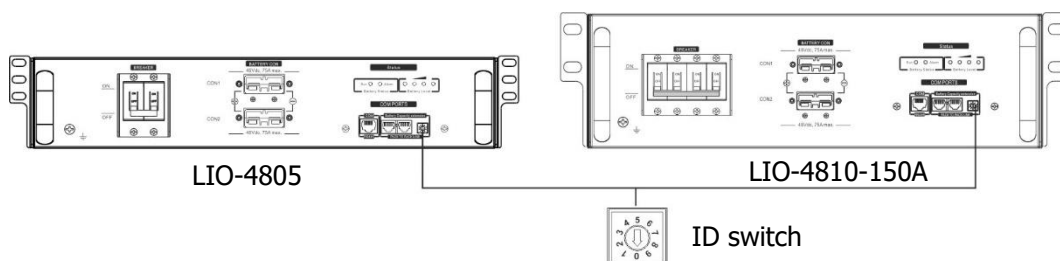
2. Pin Assignment for BMS Communication Port

	Definition
PIN 1	RS232TX
PIN 2	RS232RX
PIN 3	RS485B
PIN 4	NC
PIN 5	RS485A
PIN 6	CANH
PIN 7	CANL
PIN 8	GND

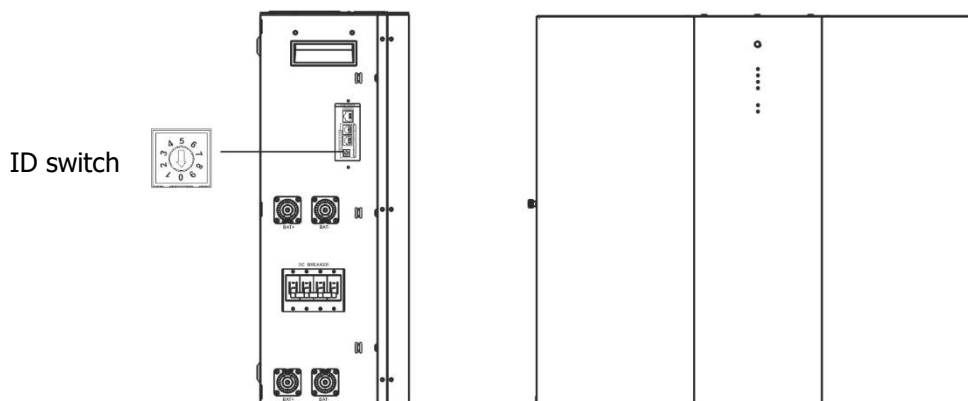


3. Lithium Battery Communication Configuration

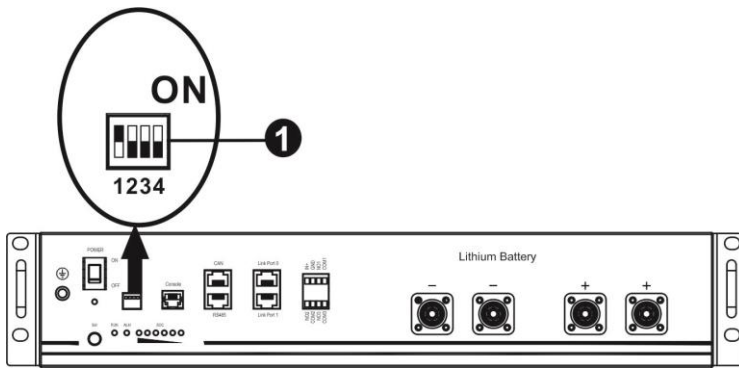
LIO-4805/LIO-4810-150A



ESS LIO-I 4810



ID Switch indicates the unique ID code for each battery module. It's required to assign an identical ID to each battery module for normal operation. We can set up the ID code for each battery module by rotating the PIN number on the ID switch. From number 0 to 9, the number can be random; no particular order. Maximum 10 battery modules can be operated in parallel.



□ Dip Switch: There are 4 Dip Switches that sets different baud rate and battery group address. If switch position is turned to the "OFF" position, it means "0". If switch position is turned to the "ON" position, it means "1".

Dip 1 is "ON" to represent the baud rate 9600.

Dip 2, 3 and 4 are reserved for battery group address.

Dip switch 2, 3 and 4 on master battery (first battery) are to set up or change the group address.

NOTE: "1" is upper position and "0" is bottom position.

Dip 1	Dip 2	Dip 3	Dip 4	Group address
1: RS485 baud rate=9600 Restart to take effect	0	0	0	Single group only. It's required to set up master battery with this setting and slave batteries are unrestricted.
	1	0	0	Multiple group condition. It's required to set up master battery on the first group with this setting and slave batteries are unrestricted.
	0	1	0	Multiple group condition. It's required to set up master battery on the second group with this setting and slave batteries are unrestricted.
	1	1	0	Multiple group condition. It's required to set up master battery on the third group with this setting and slave batteries are unrestricted.
	0	0	1	Multiple group condition. It's required to set up master battery on the fourth group with this setting and slave batteries are unrestricted.
	1	0	1	Multiple group condition. It's required to set up master battery on the fifth group with this setting and slave batteries are unrestricted.

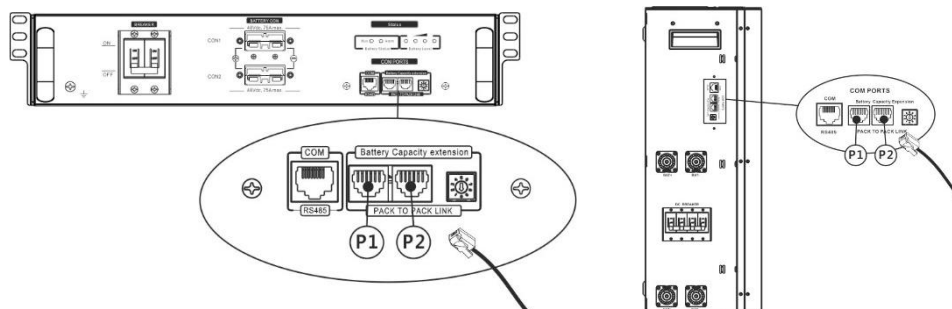
NOTE: The maximum groups of lithium battery is 5 and for maximum number for each group, please check with battery manufacturer.

4. Installation and Operation

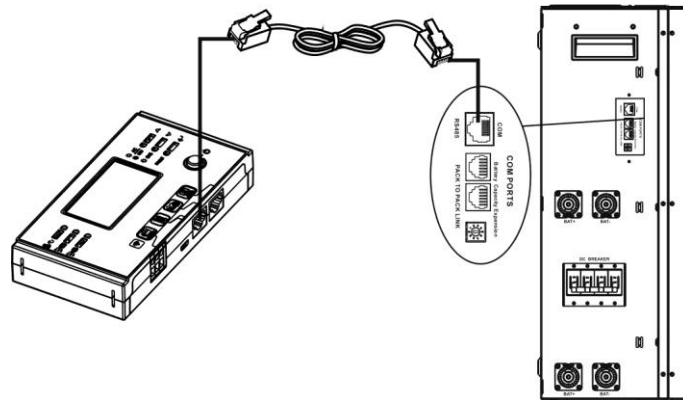
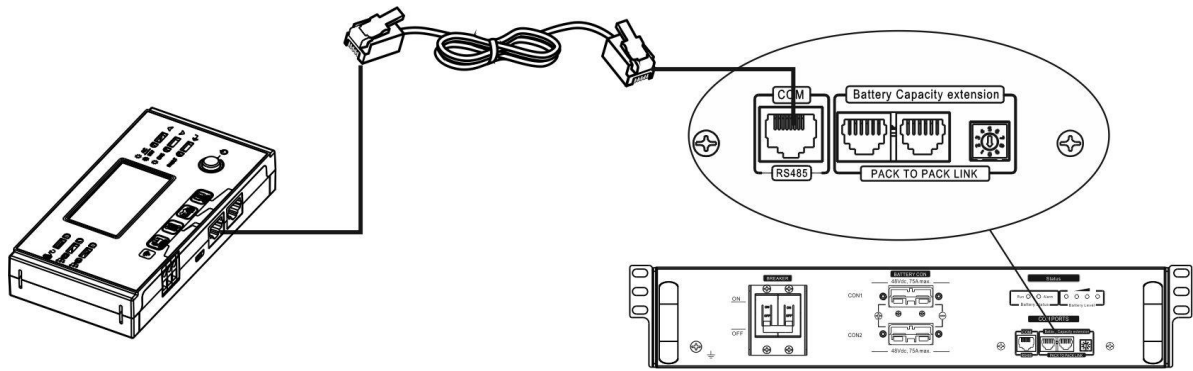
LIO-4805/LIO-4810-150A/ESS LIO-I 4810

After ID no. is assigned for each battery module, please set up LCD panel in inverter and install the wiring connection as following steps.

Step 1: Use supplied RJ11 signal cable to connect into the extension port (P1 or P2).



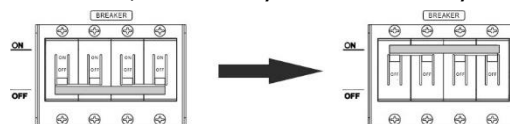
Step 2: Use supplied RJ45 cable (from battery module package) to connect inverter and Lithium battery.



Note for parallel system:

1. Only support common battery installation.
2. Use custom-made RJ45 cable to connect any inverter (no need to connect to a specific inverter) and Lithium battery. Simply set this inverter battery type to "LIB" in LCD program 5. Others should be "USE".

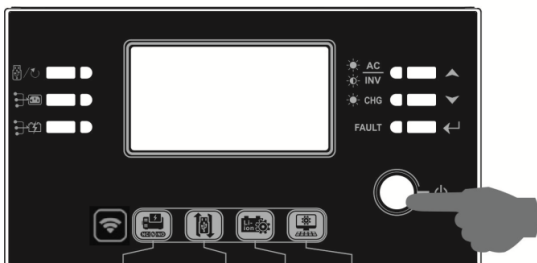
Step 3: Turn the breaker switch "ON". Now, the battery module is ready for DC output.



Step 4: Press Power on/off button on battery module for 5 secs, the battery module will start up.

*If the manual button cannot be approached, just simply turn on the inverter module. The battery module will be automatically turned on.

Step 5. Turn on the inverter.



Step 6. Be sure to select battery type as "LIB" in LCD program 5.

05 ⚙️

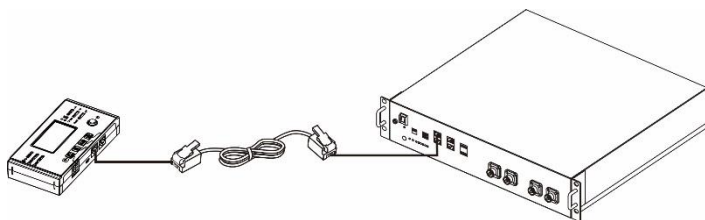
LIB

If communication between the inverter and battery is successful, the battery icon  on LCD display will flash. Generally speaking, it will take longer than 1 minute to establish communication.

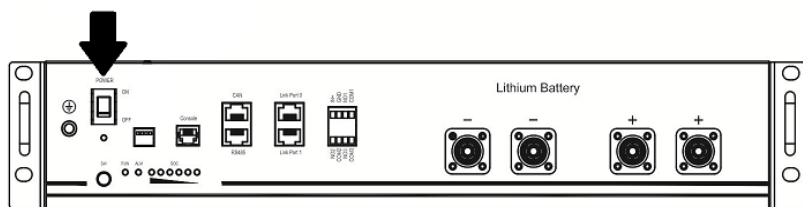
PYLONTECH

After configuration, please install LCD panel with inverter and Lithium battery with the following steps.

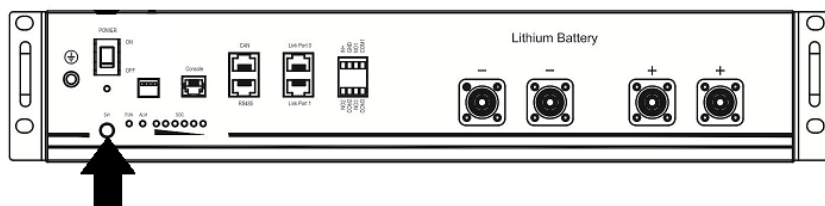
Step 1. Use custom-made RJ45 cable to connect inverter and Lithium battery.



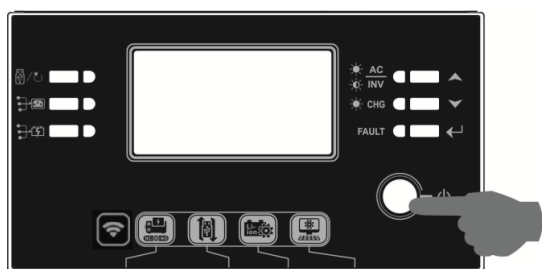
Step 2. Switch on Lithium battery.



Step 3. Press more than three seconds to start Lithium battery. Output power is ready.



Step 4. Turn on the inverter.



Step 5. Be sure to select battery type as "PYL" in LCD program 5.

05 

PYL

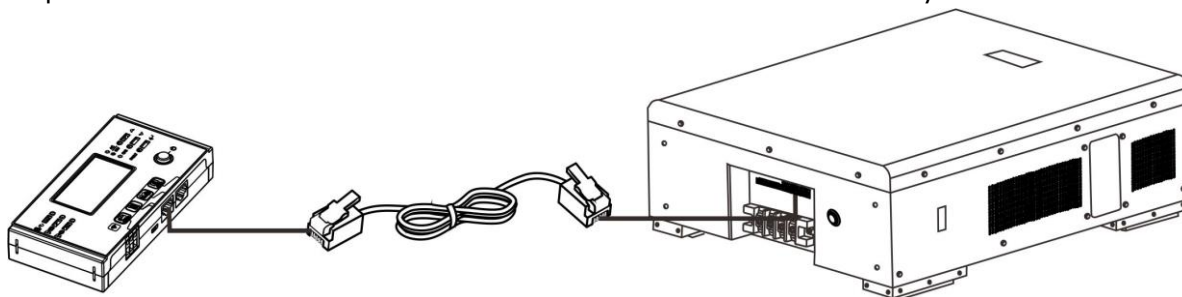
If communication between the inverter and battery is successful, the battery icon  on LCD display will flash. Generally speaking, it will take longer than 1 minute to establish communication.

Active Function

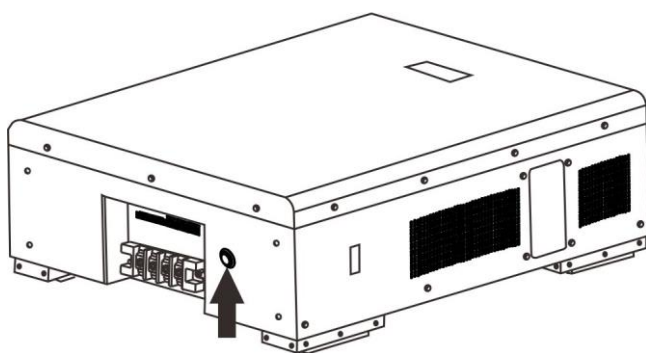
This function is to activate lithium battery automatically while commissioning. After battery wiring and commissioning is successfully, if battery is not detected, the inverter will automatically activate battery if the inverter is powered on.

WECO

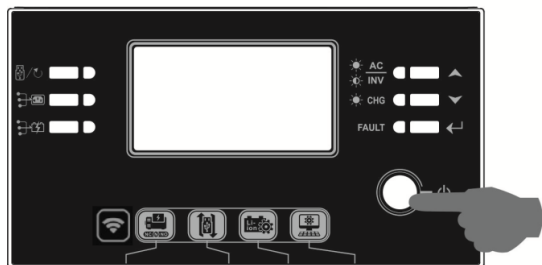
Step 1. Use a custom-made RJ45 cable to connect inverter and Lithium battery.



Step 2. Switch on Lithium battery.



Step 3. Turn on the inverter.



Step 4. Be sure to select battery type as "WEC" in LCD program 5.

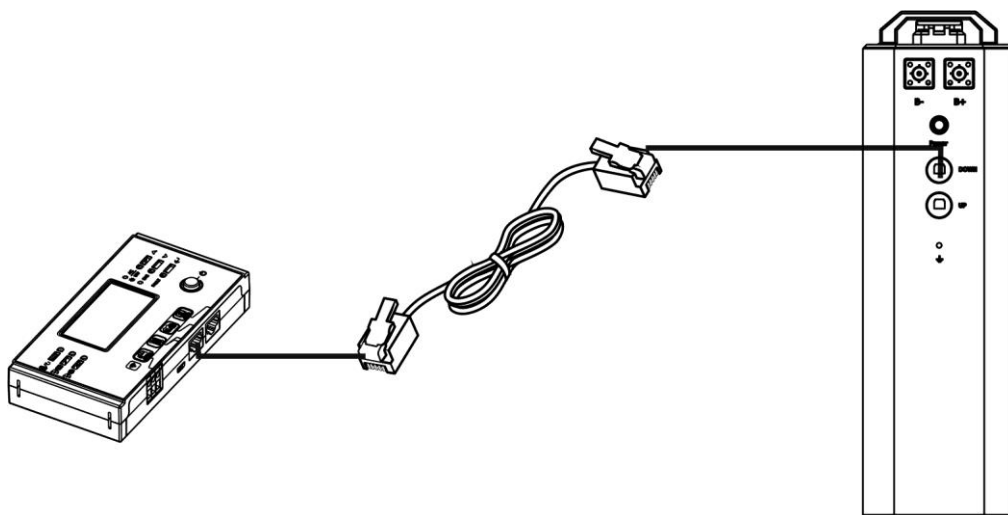
05 

WEC

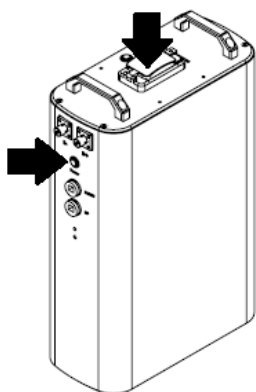
If communication between the inverter and battery is successful, the battery icon  on LCD display will "flash". Generally speaking, it will take longer than 1 minute to establish communication.

SOLTARO

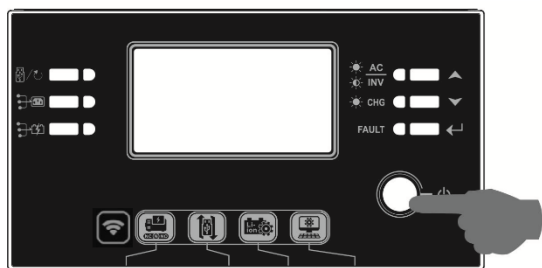
Step 1. Use a custom-made RJ45 cable to connect inverter and Lithium battery.



Step 2. Open DC isolator and switch on Lithium battery.



Step 3. Turn on the inverter.



Step 4. Be sure to select battery type as "SOL" in LCD program 5.

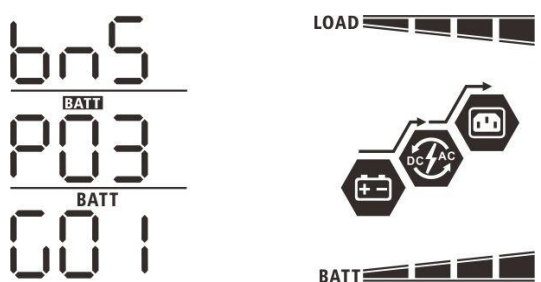
05 

SOL

If communication between the inverter and battery is successful, the battery icon  on LCD display will "flash". Generally speaking, it will take longer than 1 minute to establish communication.

5. LCD Display Information

Press "▲" or "▼" button to switch LCD display information. It will show battery pack and battery group number before "Main CPU version checking" as shown below.

Selectable information	LCD display
Battery pack numbers & Battery group numbers	Battery pack numbers = 3, battery group numbers = 1 

5. Code Reference

Related information code will be displayed on LCD screen. Please check inverter LCD screen for the operation.

Code	Description	Action
60 	If battery status is not allowed to charge and discharge after the communication between the inverter and battery is successful, it will show code 60 to stop charging and discharging battery.	
61 	Communication lost (only available when the battery type is setting as "Pylontech Battery".) - After battery is connected, communication signal is not detected for 3 minutes, buzzer will beep. After 10 minutes, inverter will stop charging and discharging to lithium battery. - Communication lost occurs after the inverter and battery is connected successfully, buzzer beeps immediately.	
69 	If battery status is not allowed to charge after the communication between the inverter and battery is successful, it will show code 69 to stop charging battery.	
70 	If battery status must to be charged after the communication between the inverter and battery is successful, it will show code 70 to charge battery.	
71 	If battery status is not allowed to discharge after the communication between the inverter and battery is successful, it will show code 71 to stop discharging battery.	

Appendix C: The Wi-Fi Operation Guide in Remote Panel

1. Introduction

Wi-Fi module can enable wireless communication between off-grid inverters and monitoring platform. Users have complete and remote monitoring and controlling experience for inverters when combining Wi-Fi module with WatchPower APP, available for both iOS and Android based device. All data loggers and parameters are saved in iCloud.

The major functions of this APP:

- Delivers device status during normal operation.
- Allows to configure device setting after installation.
- Notifies users when a warning or alarm occurs.
- Allows users to query inverter history data.



2. WatchPower App

2-1. Download and install APP

Operating system requirement for your smart phone:

🍏 iOS system supports iOS 9.0 and above

🤖 Android system supports Android 5.0 and above

Please scan the following QR code with your smart phone and download WatchPower App.



Android
system



iOS system

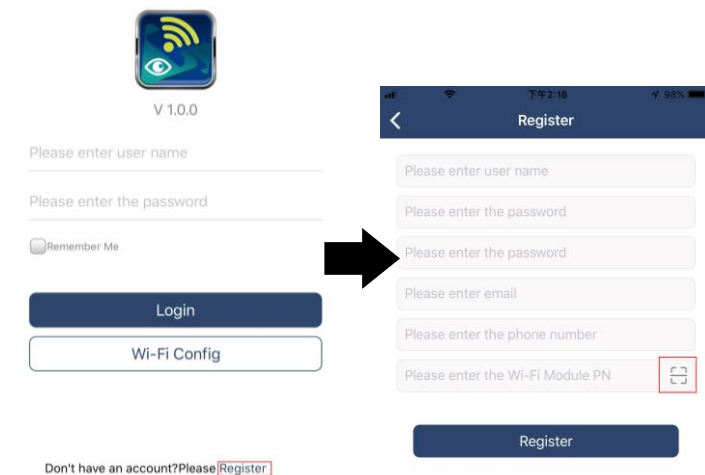
Or you may find "WatchPower" app from the Apple® Store or "WatchPower Wi-Fi" in Google® Play Store.



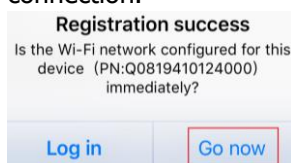
2-2. Initial Setup

Step 1: Registration at first time

After the installation, please tap the shortcut icon  to access this APP on your mobile screen. In the screen, tap "Register" to access "User Registration" page. Fill in all required information and scan the remote box PN by tapping  icon. Or you can simply enter PN directly. Then, tap "Register" button.

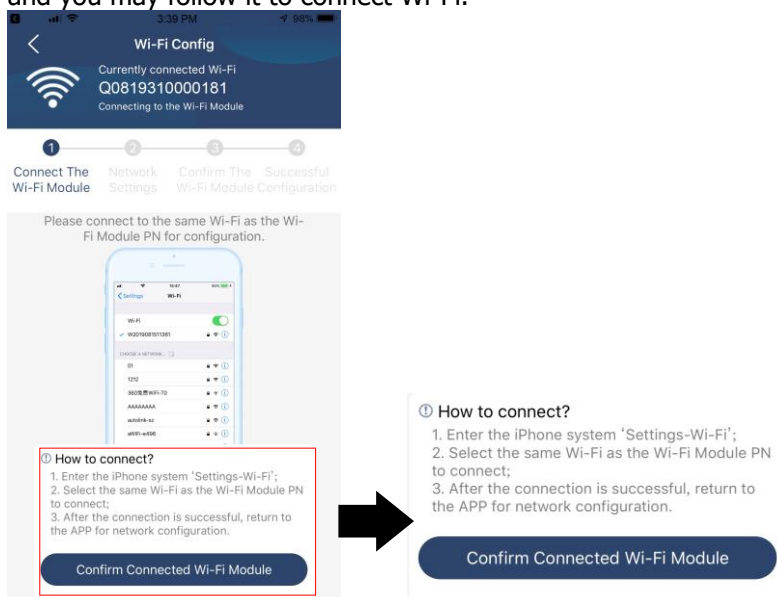


Then, a "Registration success" window will pop up. Tap "Go now" to continue setting local Wi-Fi network connection.

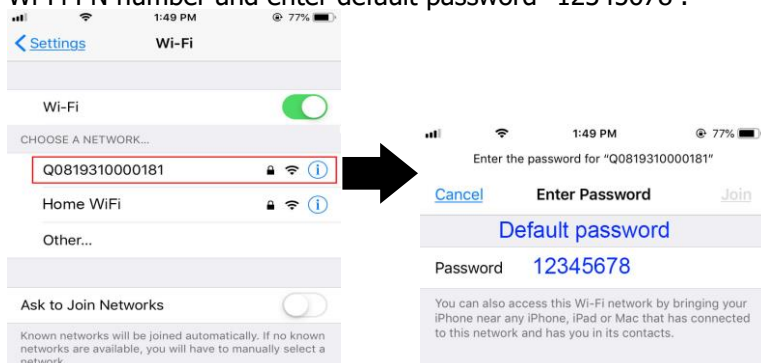


Step 2: Local Wi-Fi Module Configuration

Now, you are in "Wi-Fi Config" page. There are detailed setup procedure listed in "How to connect?" section and you may follow it to connect Wi-Fi.



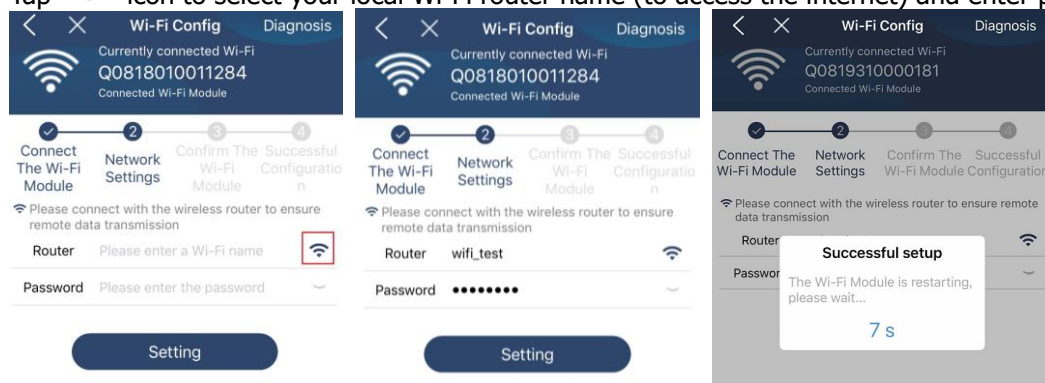
Enter the "Settings→Wi-Fi" and select connected Wi-Fi name. The connected Wi-Fi name is the same to your Wi-Fi PN number and enter default password "12345678".



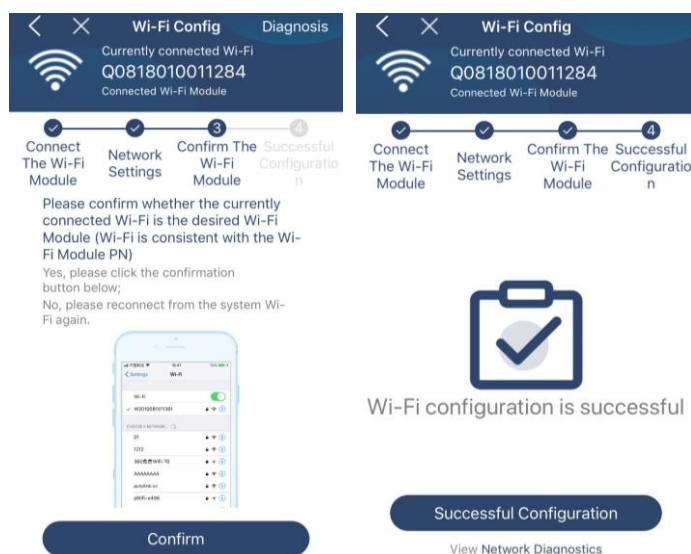
Then, return to WatchPower APP and tap "Confirm Connected Wi-Fi Module" button when Wi-Fi module is connected successfully.

Step 3: Wi-Fi Network settings

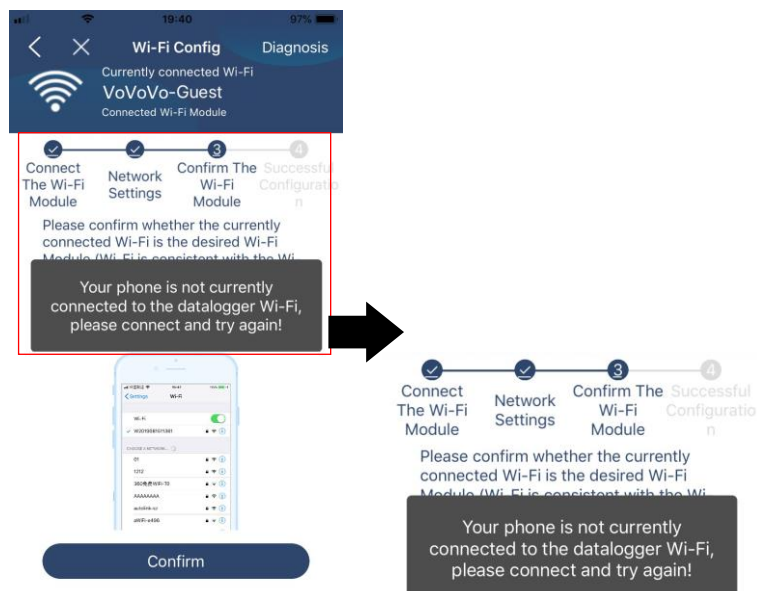
Tap  icon to select your local Wi-Fi router name (to access the internet) and enter password.



Step 4: Tap "Confirm" to complete the Wi-Fi configuration between the Wi-Fi module and the Internet.

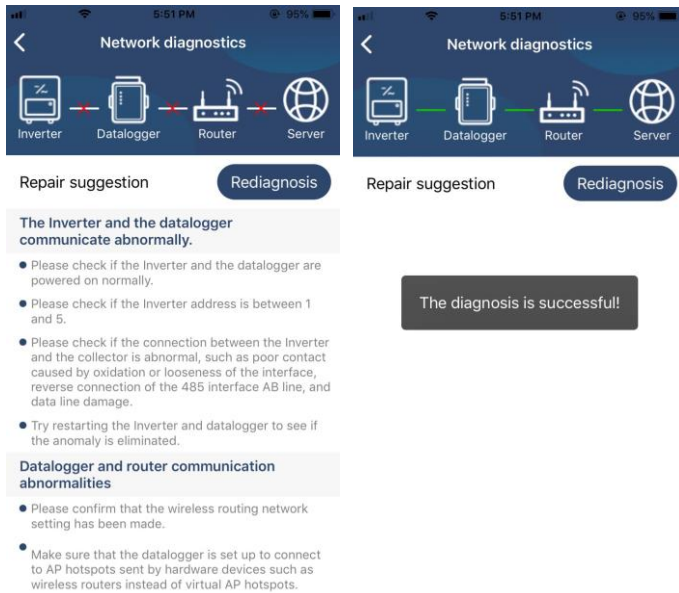


If the connection fails, please repeat Step 2 and 3.



Diagnose Function

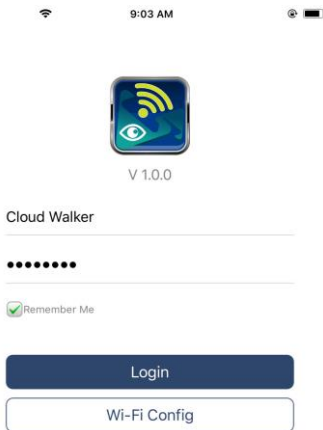
If the module is not monitoring properly, please tap "Diagnosis" on the top right corner of the screen for further details. It will show repair suggestion. Please follow it to fix the problem. Then, repeat the steps in the chapter 4.2 to re-set network setting. After all setting, tap "Rediagnosis" to re-connect again.



2-3.Login and APP Main Function

After finishing the registration and local Wi-Fi configuration, enter registered name and password to login.

Note: Tick "Remember Me" for your login convenience afterwards.



Overview

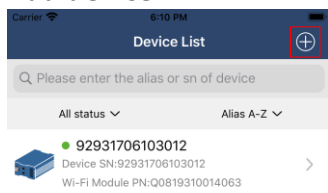
After login is successfully, you can access "Overview" page to have overview of your monitoring devices, including overall operation situation and Energy information for Current power and Today power as below diagram.



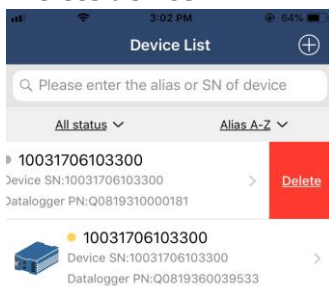
Devices

Tap the  icon (located on the bottom) to enter Device List page. You can review all devices here by adding or deleting Wi-Fi Module in this page.

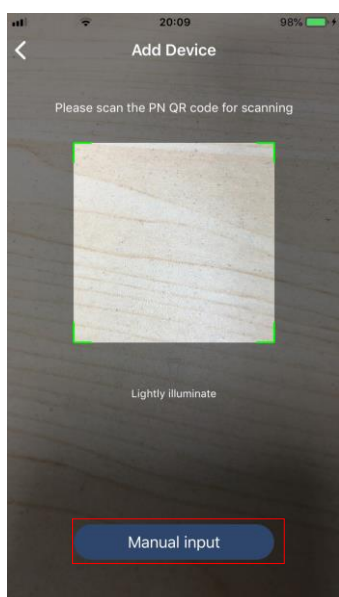
Add device



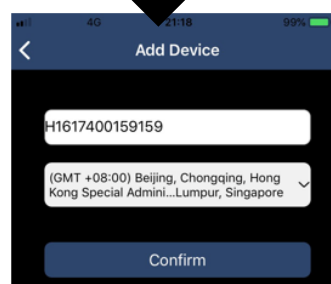
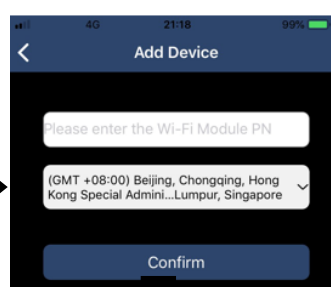
Delete device



Tap  icon on the top right corner and manually enter part number to add device. This part number label is pasted on the bottom of remote LCD panel. After entering part number, tap "Confirm" to add this device in the Device list.



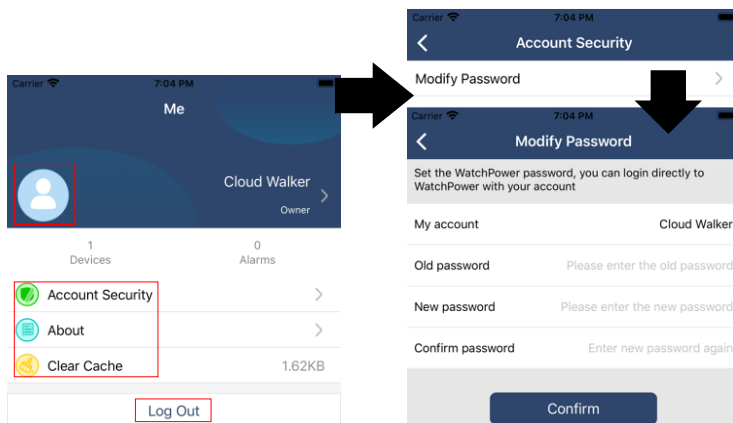
Part number label is pasted on the bottom of remote LCD panel.



For more information about Device List, please refer to the section 2.4.

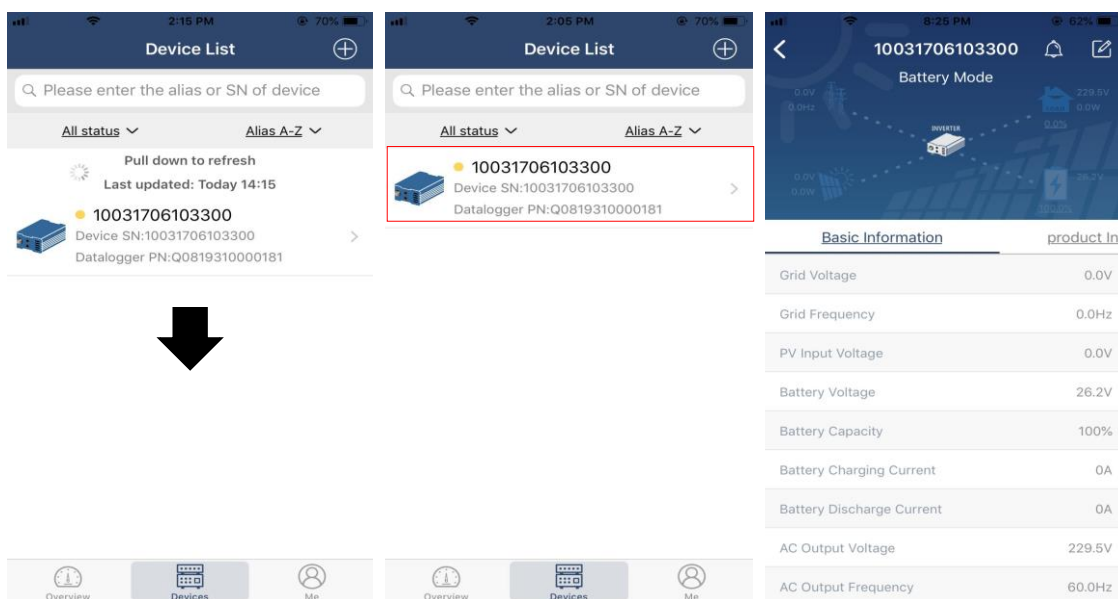
ME

In ME page, users can modify "My information", including 【User's Photo】 , 【Account security】 , 【Modify password】 , 【Clear cache】 ,and 【Log-out】 , shown as below diagrams.



2-4. Device List

In Device List page, you can pull down to refresh the device information and then tap any device you want to check up for its real-time status and related information as well as to change parameter settings. Please refer to the parameter setting list.



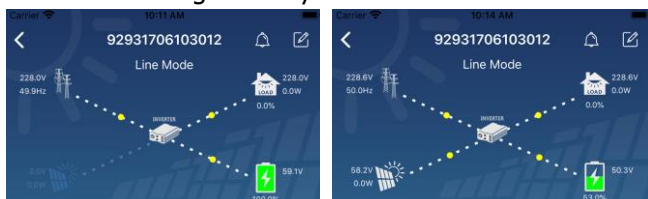
Device Mode

On the top of screen, there is a dynamic power flow chart to show live operation. It contains five icons to present PV power, inverter, load, utility and battery. Based on your inverter model status, there will be **【Standby Mode】**, **【Line Mode】**, **【Battery Mode】**.

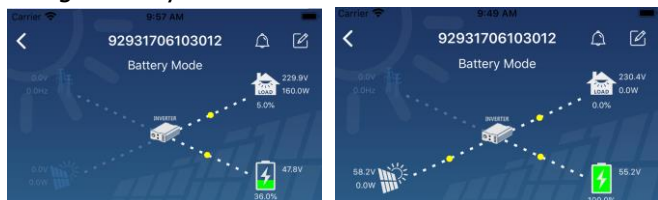
【Standby Mode】 Inverter will not power the load until "ON" switch is pressed. Qualified utility or PV source can charge battery in standby mode.



【Line Mode】 Inverter will power the load from the utility with or without PV charging. Qualified utility or PV source can charge battery.

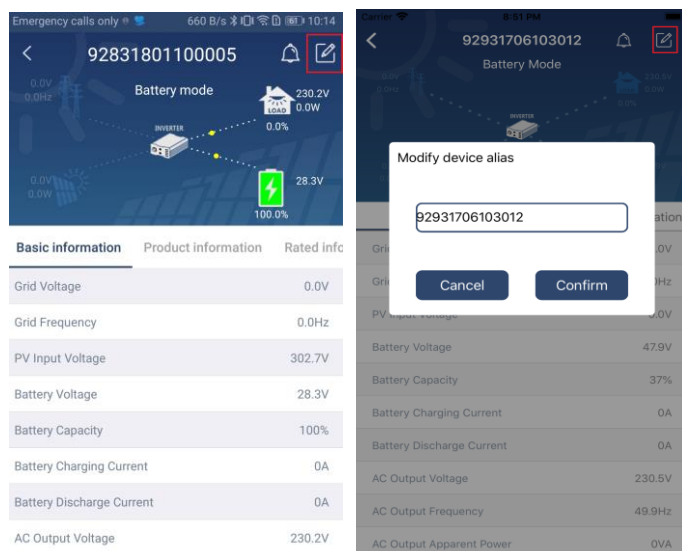


【Battery Mode】Inverter will power the load from the batter with or without PV charging. Only PV source can charge battery.



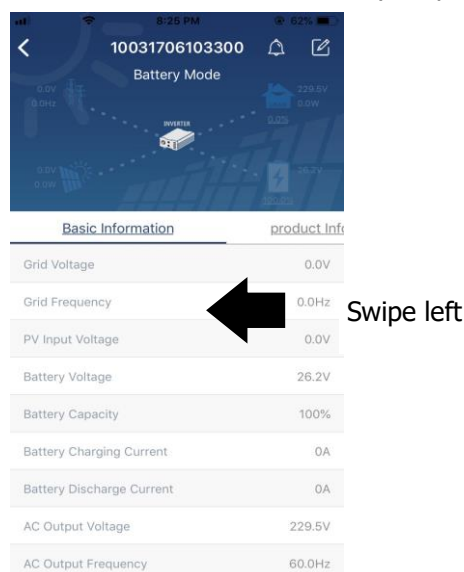
Device Alarm and Name Modification

In this page, tap the  icon on the top right corner to enter the device alarm page. Then, you can review alarm history and detailed information. Tap the  icon on the top right corner, a blank input box will pop out. Then, you can edit the name for your device and tap "Confirm" to complete name modification.



Device Information Data

Users can check up **【Basic Information】** , **【Product Information】** , **【Rated information】** , **【History】** , and **【Wi-Fi Module Information】** by swiping left.



【Basic Information】 displays basic information of the inverter, including AC voltage, AC frequency, PV input voltage, Battery voltage, Battery capacity, Charging current, Output voltage, Output frequency, Output apparent power, Output active power and Load percent. Please slide up to see more basic information.

【Production Information】 displays Model type (Inverter type), Main CPU version, Bluetooth CPU version and secondary CPU version.

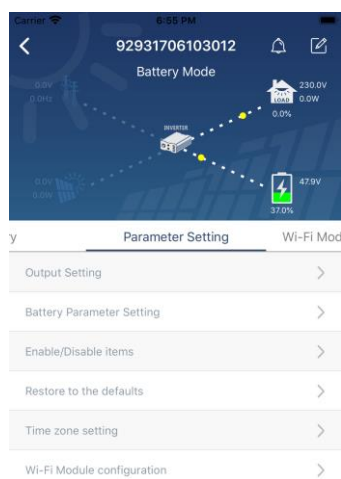
【Rated Information】 displays information of Nominal AC voltage, Nominal AC current, Rated battery voltage, Nominal output voltage, Nominal output frequency, Nominal output current, Nominal output apparent power and Nominal output active power. Please slide up to see more rated information.

【History】 displays the record of unit information and setting timely.

【Wi-Fi Module Information】 displays of Wi-Fi Module PN, status and firmware version.

Parameter Setting

This page is to activate some features and set up parameters for inverters. Please be noted that the listing in "Parameter Setting" page in below diagram may differ from the models of monitored inverter. Here will briefly highlight some of it, **【Output Setting】**, **【Battery Parameter Setting】**, **【Enable/ Disable items】**, **【Restore to the defaults】** to illustrate.



There are three ways to modify setting and they vary according to each parameter.

a) Listing options to change values by tapping one of it.

b) Activate/Shut down functions by clicking "Enable" or "Disable" button.

c) Changing values by clicking arrows or entering the numbers directly in the column.

Each function setting is saved by clicking "Set" button.

Please refer to below parameter setting list for an overall description and be noted that the available parameters may vary depending on different models. Please always see the original product manual for detailed setting instructions.

Parameter setting list:

Item		Description
Output setting	Output source priority	To configure load power source priority.
	AC input range	When selecting "UPS", it's allowed to connect personal computer.
		Please check product manual for details.
		When selecting "Appliance", it's allowed to connect home appliances.
	Output voltage	To set output voltage.
	Output frequency	To set output frequency.
Battery parameter setting	Battery type:	To set connected battery type.
	Battery cut-off voltage	To set the battery stop discharging voltage. Please see product manual for the recommended voltage range based on connected battery type.
	Back to grid voltage	When "SBU" or "SOL" is set as output source priority and battery voltage is lower than this setting voltage, unit will transfer to line mode and the grid will provide power to load.
	Back to discharge voltage	When "SBU" or "SOL" is set as output source priority and battery voltage is higher than this setting voltage, battery will be allowed to

		discharge.
	Charger source priority:	To configure charger source priority.
	Max. charging current	It's to set up battery charging parameters. The selectable values in different inverter model may vary. Please see product manual for the details.
	Max. AC charging current:	
	Float charging voltage	
	Bulk charging voltage	It's to set up battery charging parameters. The selectable values in different inverter model may vary. Please see product manual for the details.
	Battery equalization	Enable or disable battery equalization function.
	Real-time Activate Battery Equalization	It's real-time action to activate battery equalization.
	Equalized Time Out	To set up the duration time for battery equalization.
	Equalized Time	To set up the extended time to continue battery equalization.
	Equalization Period	To set up the frequency for battery equalization.
	Equalization Voltage	To set up the battery equalization voltage.
Enable/Disable Functions	LCD Auto-return to Main screen	If enable, LCD screen will return to its main screen after one minute automatically.
	Fault Code Record	If enabled, fault code will be recorded in the inverter when any fault happens.
	Backlight	If disabled, LCD backlight will be off when panel button is not operated for 1 minute.
	Bypass Function	If enabled, unit will transfer to line mode when overload happened in battery mode.
	Beeps while primary source interrupt	If enabled, buzzer will alarm when primary source is abnormal.
	Over Temperature Auto Restart	If disabled, the unit won't be restarted after over-temperature fault is solved.
	Overload Auto Restart	If disabled, the unit won't be restarted after overload occurs.
	Buzzer	If disabled, buzzer won't be on when alarm/fault occurred.
RGB LED Setting	Enable/disable	Turn on or off RGB LEDs
	Brightness	Adjust the lighting brightness
	Speed	Adjust the lighting speed
	Effects	Change the light effects
	Color selection	Adjust color combination to show energy source an battery status
Restore to the default	This function is to restore all settings back to default settings.	

Declaración de conformidad del fabricante / Declaration of conformity of manufacturer / Declaração de conformidade

SG GROUP Avenida del Ebro, 12 Calahorra 26500 (La Rioja) Spain

Declara que el siguiente aparato cumple con los requisitos básicos adecuados a la seguridad y salud según las directivas de la CE (mostradas en esta declaración) basados en su diseño de origen puesto en circulación por nosotros. Esta declaración se refiere exclusivamente a la maquinaria en el estado en que se ofrece al mercado, y excluye los componentes que se añadan y/o las operaciones realizadas posteriormente por el usuario final.

Declare that the following Appliance complies with the appropriate basic safety and health requirements of the EC Directives (show in this declaration) based on its design and type, as brought into circulation by us. This declaration relates exclusively to the machinery in the state in which it was placed on the market, and excludes components which are added and/or operations carried out subsequently by the final user.

Declaramos que o seguinte equipamento cumpre com os requisitos básicos relativos à Segurança e Saúde, segundo as directivas da CE (incluídas nesta declaração), e o desenho de origem disponibilizado por nós. Esta declaração refere-se exclusivamente ao estado do equipamento quando se coloca no mercado, e excluem acessórios e/ou componentes adicionados pelo utilizador à posteriori.

✓	Denominación / Name / Designação:	Inversor solar / Solar inverter / Inversor solar
✓	Marca / Brand / Marca:	GENERGY
✓	Modelo / Model / Modelo:	IFR4000-24 - IFR6000-48
✓	Potencia / Power / Potência:	4000W - 6000W

Certificados internacionales/international certifications/certificações internacionais: CE|RoHS|MSDS|FCC|UN38.3|Marine report.
Aplicable a Europa / Applicable to Europe / Aplicables a Europa:

2014/35/EU LVD

- EN62109-2:2011
- EN62109-1:2010
- TEST-REPORT: NTC2108673SV00
- EN IEC 61000-6-6:2019, IEC 61000-6-4:2018, EN IEC61000-6-2:2019, IEC 61000-6-2:2016,
EN IEC61000-3-11:2019, IEC 61000-3-11:2017, EN 61000-3-12:2011, IEC 61000-3-13-2011
REPORT: 21195CEAE1

Calahorra 01-08-2022



Mr Ruben Losantos (Tech manager)

No retorne este producto a la tienda – Do not return this product to the store.

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Send your questions to our customer care team (reply within 24 hours)

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Si lo prefiere llame directamente a nuestro equipo postventa
Contacto telefónico únicamente en español – phone service only available in Spanish

690 138 487

- Dudas primera puesta en marcha
Doubts first start of the machine
- Documentación técnica
Technical documentation
- Asesoramiento técnico-technical advice
- Mantenimiento-Maintenance
- Recambios-Spare parts



POLIGONO INDUSTRIAL NEINVER, CALAHORRA (LA RIOJA)
CONTACTO CONTACT
INFO@SG-GROUP.ES





**CRETA SILENT
SOL-ATS-RC**

INSTRUCCIONES DE USO

POR FAVOR, LEA ESTE MANUAL CON ATENCIÓN ANTES DE UTILIZAR LA MÁQUINA

INSTRUCTIONS FOR USE

PLEASE READ THIS MANUAL CAREFULLY BEFORE USING THE MACHINE

INSTRUÇÕES DE UTILIZAÇÃO

DEVE LER ESTE MANUAL COM ATENÇÃO ANTES DE UTILIZAR O EQUIPAMENTO

CONSERVE ESTE MANUAL
Incluye instrucciones de seguridad importantes.

KEEP THIS MANUAL
It includes important safety instructions.

DEVE GUARDAR ESTE MANUAL
Inclui instruções de segurança importantes.

Instrucciones originales

GRACIAS por su compra del Generador gasolina GENERGY.

- Los derechos de autor de estas instrucciones pertenecen a nuestra empresa Stock Garden Group.
- Se prohíbe la reproducción, transferencia, distribución de cualquier contenido del manual sin la autorización escrita de Stock graden Group.
- “GENERGY” y “ ” son respectivamente, la marca comercial y logo registrados de los productos GENERGY cuya propiedad corresponde a Stock Garden Group.
- Stock Garden Group se reserva el derecho de modificación de nuestros productos bajo la marca GENERGY y la revisión del manual sin previo aviso.
- Use este manual como parte del generador. Si revende el generador, se debe entregar el manual con el generador.
- Este manual contiene la forma de operar correctamente el generador; por favor, lea cuidadosamente antes de usar el generador. El funcionamiento correcto y seguro va a garantizar su seguridad y prolongar la vida útil del generador.
- Stock Garden Group innova de forma continua el desarrollo de sus productos GENERGY tanto en diseño como calidad. A pesar de que esta es la versión más actualizada del manual, tal vez el contenido de este manual puede tener diferencias leves con el producto.
- Póngase en contacto con su distribuidor GENERGY si tiene alguna pregunta o duda.

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15. Asistencia postventa.....	Final manual

1 Información de seguridad:

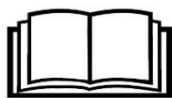
La seguridad es muy importante. A lo largo de todo el manual se han incluido importantes mensajes de seguridad. Lea y cumpla estos mensajes para que el uso de este equipo sea totalmente seguro.

Hemos dividido los mensajes de seguridad en 4 tipos diferenciados por la gravedad de sus consecuencias si no se cumplen:

 PELIGRO	Situación inminentemente peligrosa que, de no evitarse, provocará lesiones graves o letales .
 ADVERTENCIA	Situación potencialmente peligrosa que, de no evitarse, podría provocar lesiones graves o letales .
 PRECAUCION	Situación potencialmente peligrosa que, de no evitarse, puede provocar lesiones leves o moderadas .
 NOTA	Situación que, de no evitarse, puede causar daños materiales .

1.1 Resumen de los peligros más importantes en el uso de la máquina.

¡Lea por completo el manual de usuario antes del uso de la máquina!



El uso del equipo sin estar correctamente informado de su funcionamiento y normas de seguridad entraña peligros.
No permita que nadie use el grupo sin haber sido instruido para ello.

¡La gasolina es explosiva e inflamable!



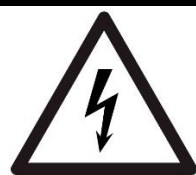
No repostar con máquina en marcha.
No repostar fumando o con llamas.
Limpiar los derrames de gasolina.
Dejar enfriar antes de repostar.
Use envases homologados para la gasolina.
No utilice el generador en atmósferas potencialmente explosivas, plantas de gas o similar, consulte con los responsables de seguridad.

¡Las emisiones del motor contienen monóxido de carbono venenoso!



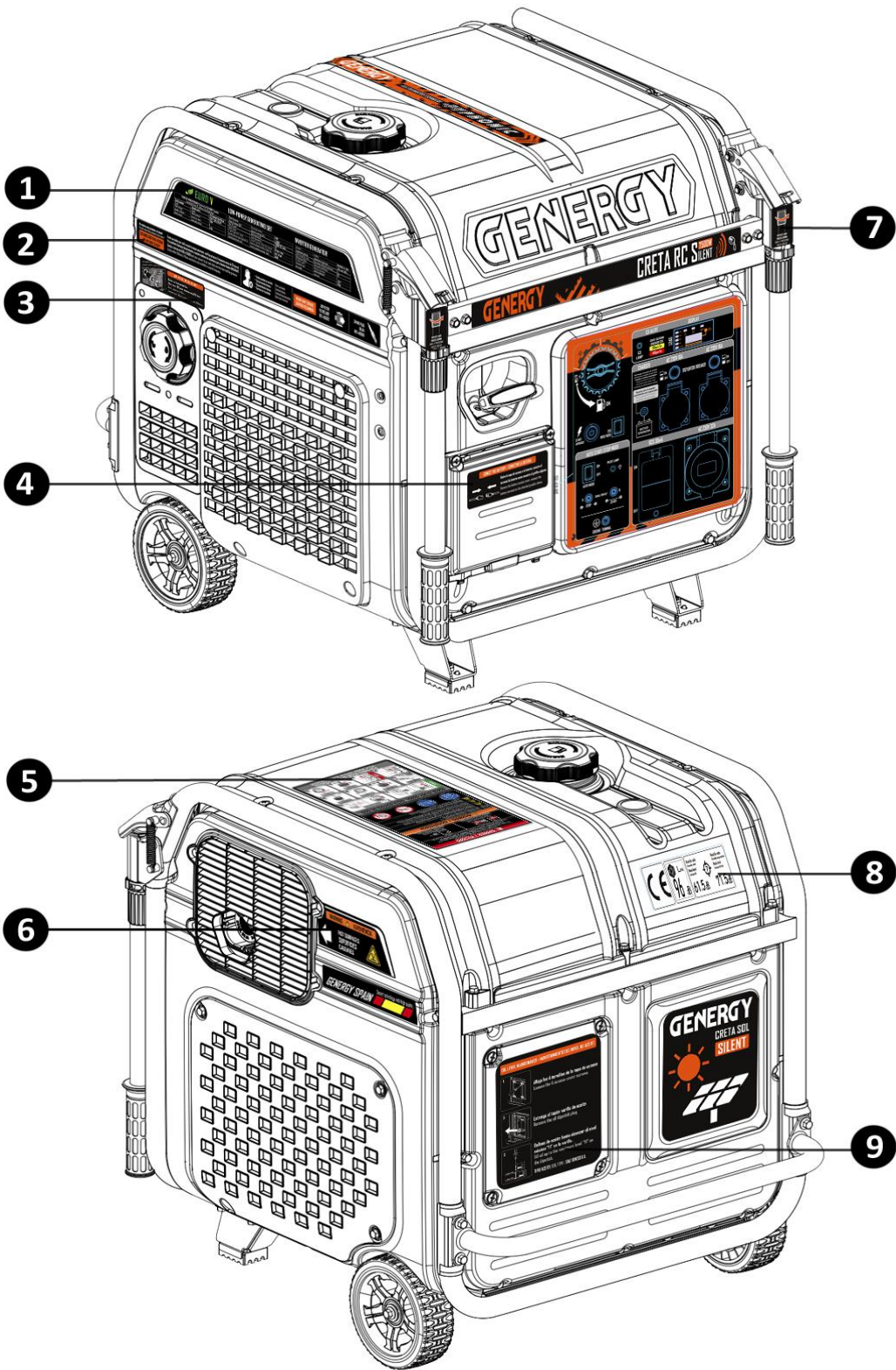
Nunca use dentro de casa, garajes, túneles, bodegas o cualquier lugar sin ventilación.
No use el equipo cerca de ventanas o puertas donde los gases puedan entrar al interior.
El escape expulsa monóxido de carbono venenoso. Usted no podrá ver ni oler este gas por lo que es muy peligroso.

¡Atención a los riesgos eléctricos!



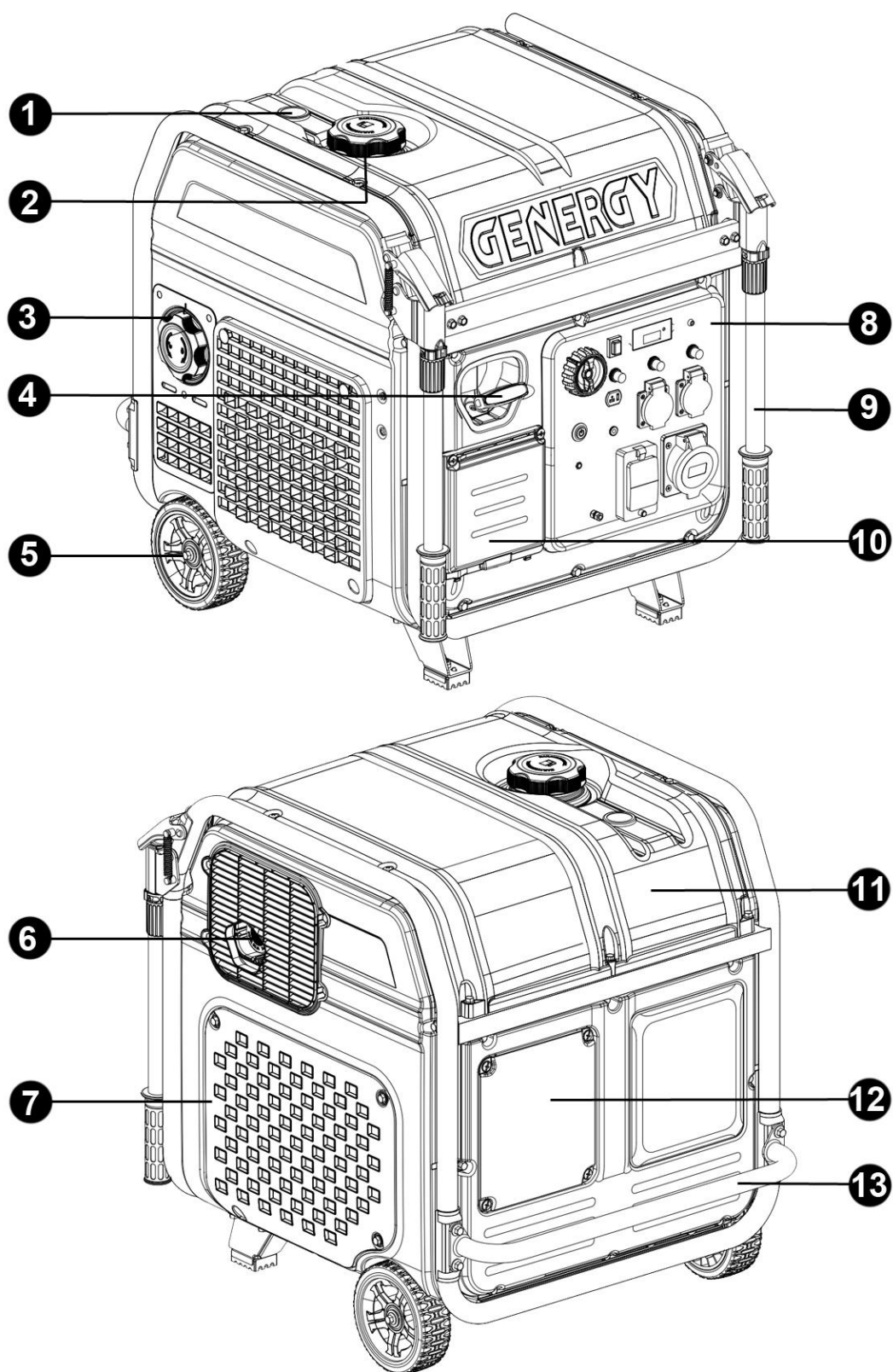
No opere el generador con las manos mojadas.
No exponga el generador a la lluvia, humedad o nieve.
Compruebe que el cableado eléctrico y que los aparatos a conectar estén en buen estado.
Conecte la toma de tierra del generador.

2 Ubicación de los adhesivos de seguridad y uso:



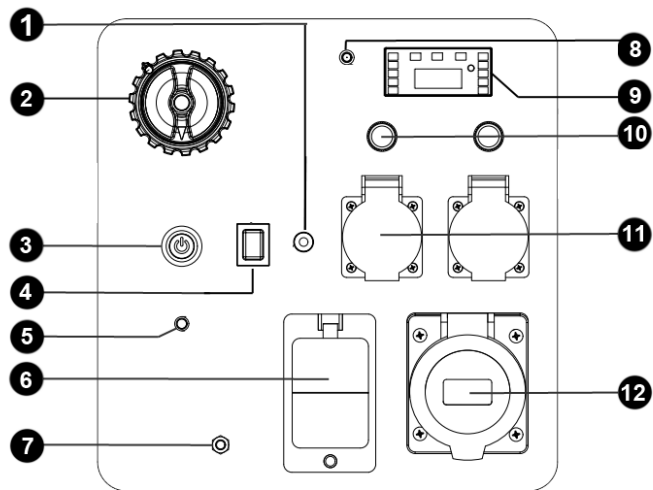
1-Especificaciones	2-Postventa	3-Info filtro aire
4-Info conexión batería	5-Seguridad y puesta en marcha.	6-Aviso peligro por temperatura
7-Noticia manecera telescópica	10-Marcado CE y nivel sonoro	9-Info alarma aceite

3 Identificación de los componentes:

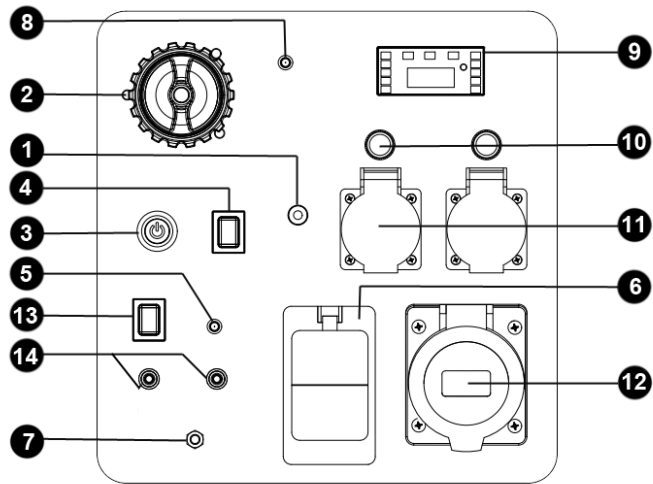


1-Visor gasolina	2-Tapon gasolina	3-Filtro de aire	4-Arranque manual
5-Kit de ruedas 6"	6-Escape	7-Acceso motor	8-Panel de control
9-Mancera telescópica	10-Acceso batería	11-Tanque de combustible	
12-Acceso motor para llenado aceite	13-Mancera elevación dos personas.		

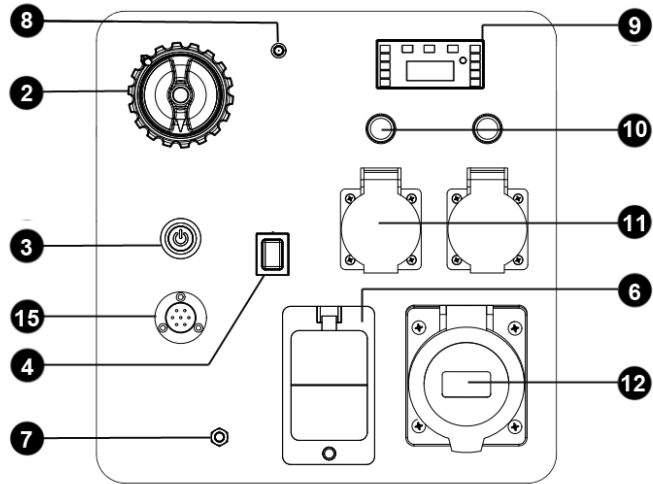
3.1 Panel de control



CRETA SILENT RC



CRETA SILENT SOL



CRETA SILENT ATS

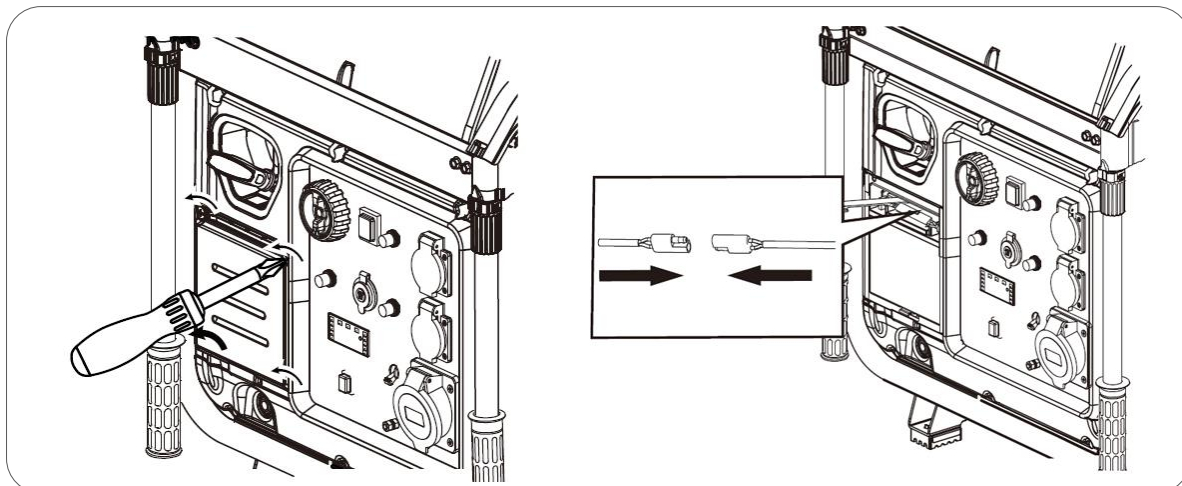
1-Puerto carga batería	2-Estrangulador-valvula de gasolina
3-Boton de arranque	4-Boton de modo ECO
5-Lampara piloto de modo auto	6-Diferencial 30mA
7-Toma de tierra	8-Alarma monóxido de carbono
9-Display digital	10-Magnetotermico tomacorrientes de 16A
11-Tomacorrientes de 16A	12-Tomacorrientes de 32A
13-Boton de modo automático	14-Contacto seco arranque NA
15-Puerto de entrada cuadro fallo de red ATS	

4 Labores previas al arranque:

4.1 Conexionado de la batería

1. Antes de conectar la batería revise que la ruleta selectora del panel de control esta posición "OFF".
2. Abra la puerta de acceso y una el conector rápido según la según el grafico inferior.

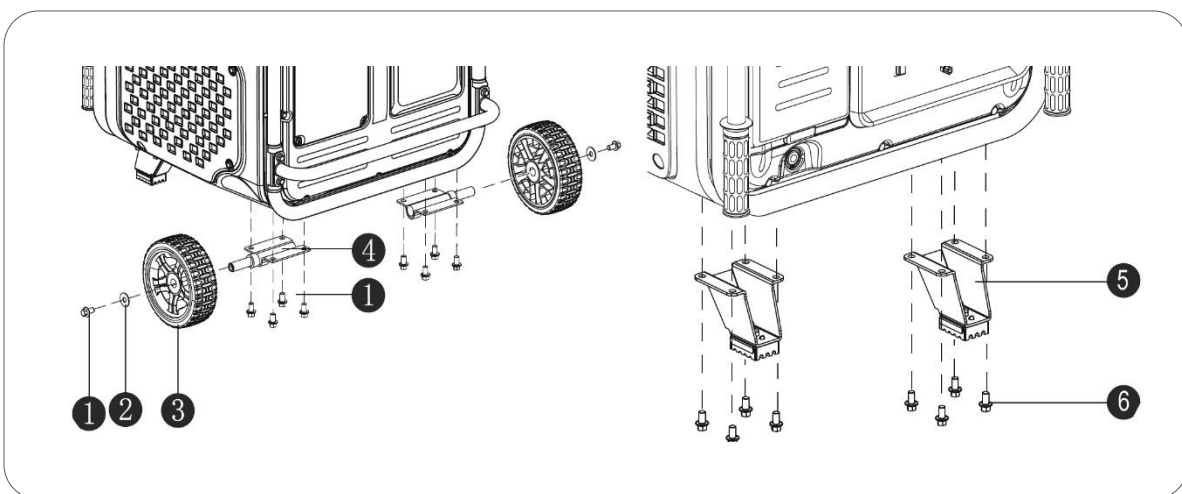
 **NOTA:** Asegúrese que la unión entre los conectores es total.



4.2 Montaje de las ruedas y pies de apoyo.

Fije los ejes de rueda (4) con la tornillería (1) incluida. A continuación, inserte la rueda (3) en el eje, y fíjela con la arandela (2) y el tornillo (1).

Atornille los pies de goma (5) con los tornillos (6) incluidos.

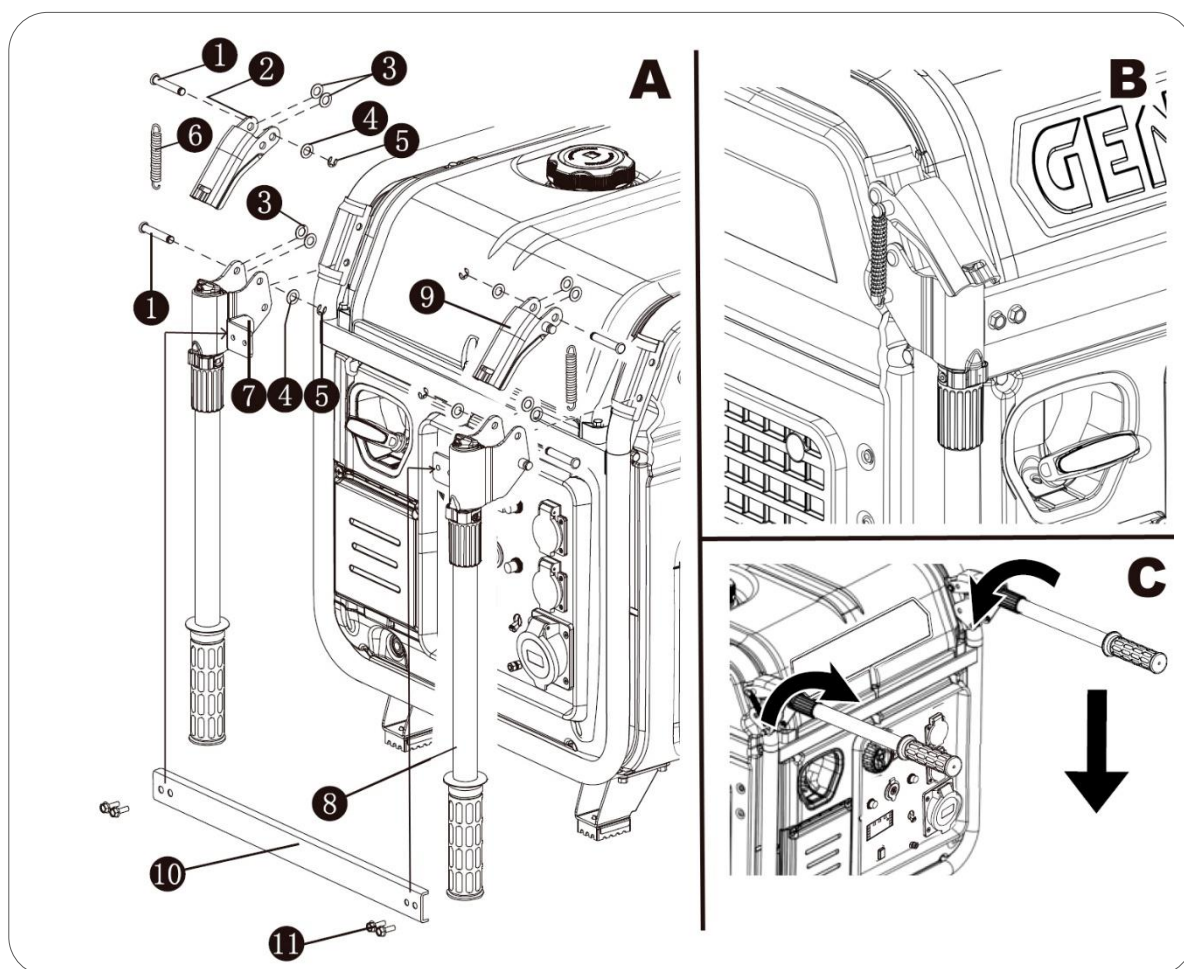


 **NOTA:** No utilice el generador sin las ruedas y pies de apoyo instalados. Tienen como finalidad absorber las vibraciones del equipo, evitando así daños por tensiones y traqueteos.

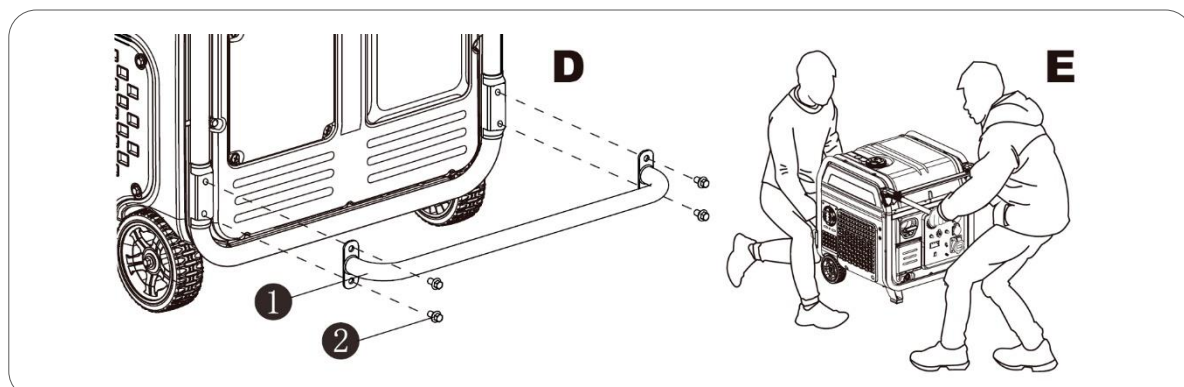
4.3 Montaje de los manillares de transporte.

Fije en primer lugar las manceras (7-8) con la tornillería tan cómo se describe en el gráfico. Ahora conecte los retenes superiores (9) con su tornillería y el muelle (6). Por último, instale la pletina frontal (10) en los orificios que quedan al interior de los manillares. En la figura **B** puede ver el resultado de los elementos ensamblados.

NOTA: Los manillares suben libremente y quedaran bloqueados en la parte superior. Para desbloquearlos y bajarlos, elévelos ligeramente gire los manillares hacia el interior como en la Figura **C**.



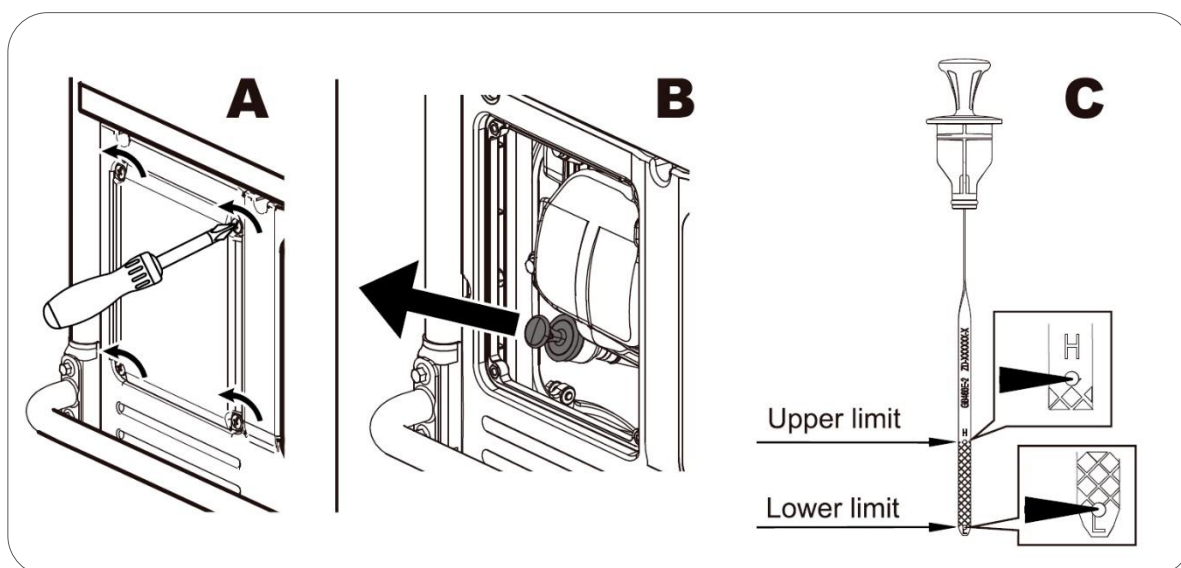
1. Instale el manillar trasero (1) según la figura B. Este manillar permitirá el desplazamiento del equipo entre dos personas.



4.4 Carga de aceite de lubricación en el motor.

NOTA: La máquina de origen se entrega sin aceite, ¡no intente poner la máquina en marcha sin haber puesto antes el aceite!

1. Asegúrese que el generador está en una superficie perfectamente nivelada para que no haya error en el nivel del aceite.
2. Con la ayuda de un destornillador, retire los 4 tornillo y abra la ventana de acceso según la figura A.
3. Retire el tapón de llenado de aceite según la figura B.
4. Rellene de aceite hasta alcanzar el nivel "Upper Limit" en la varilla de nivel.



La capacidad del aceite orientativa hasta el nivel correcto es de 1.1L.

Utilice preferentemente un aceite sintético SAE5W40 con API "SJ" (USA) o ACEA "A3" (EUROPA) o bien más actuales (ver especificaciones del envase). Este aceite dará un excelente resultado en climas variables como el continental europeo tanto en invierno como en verano.

NOTA: Tenga en cuenta que el motor consume algo de aceite con el uso, revise el nivel de aceite antes de cada uso y reponga si el nivel ha disminuido.

NOTA: Nunca use aceites viejos, sucios, en mal estado o si no conoce su grado y calidad. No mezcle aceites de diferentes tipos.

4.5 Carga y revisión del combustible

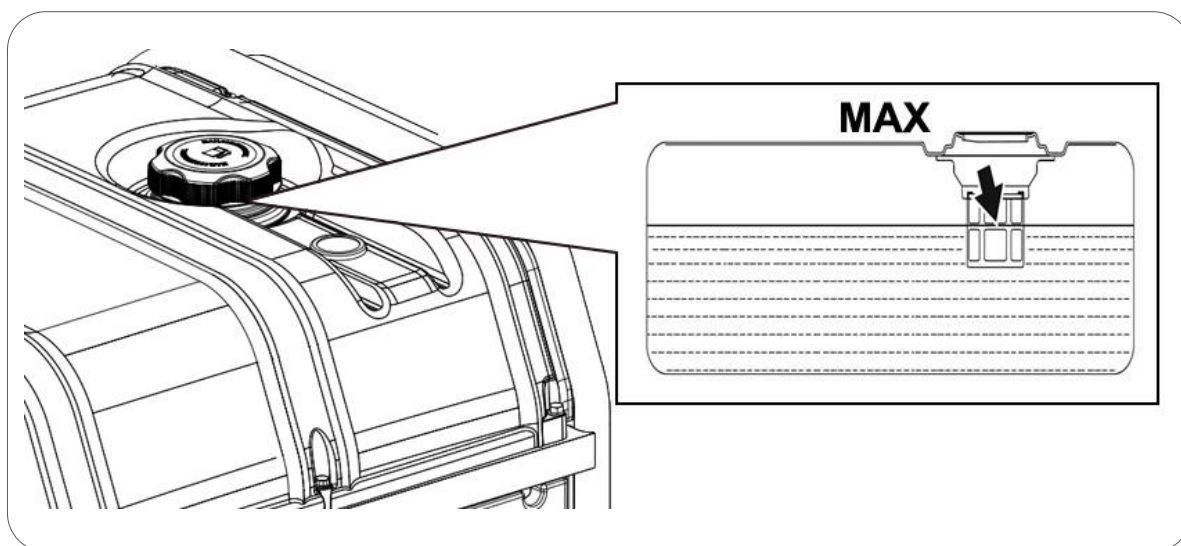
 **NOTA:** Use únicamente gasolina sin plomo (86 octanos superior).

 **NOTA:** Nunca use gasolina pasada, contaminada o mezclas de aceite/gasolina.

 **NOTA:** Evite que entre suciedad o agua en el tanque de combustible.

 **NOTA:** No use una mezcla de gasolina con etanol o metanol, de lo contrario, se puede dañar seriamente el motor.

Retire el tapón de combustible girando en sentido contrario a las agujas del reloj, rellene de gasolina sin alcanzar el nivel máximo (MAX) de la figura inferior. La capacidad aproximada del depósito es de 23L.



 **PELIGRO:** La gasolina es extremadamente explosiva e inflamable. Esta totalmente prohibido fumar, hacer fuego o generar cualquier tipo de llama en el momento del repostaje o en el lugar donde se almacena el combustible.

 **ADVERTENCIA:** Mantenga el combustible fuera del alcance de los niños.

 **ADVERTENCIA:** Evite derrames de combustible al repostar (limpie posibles derrames antes de arrancar de nuevo el motor).

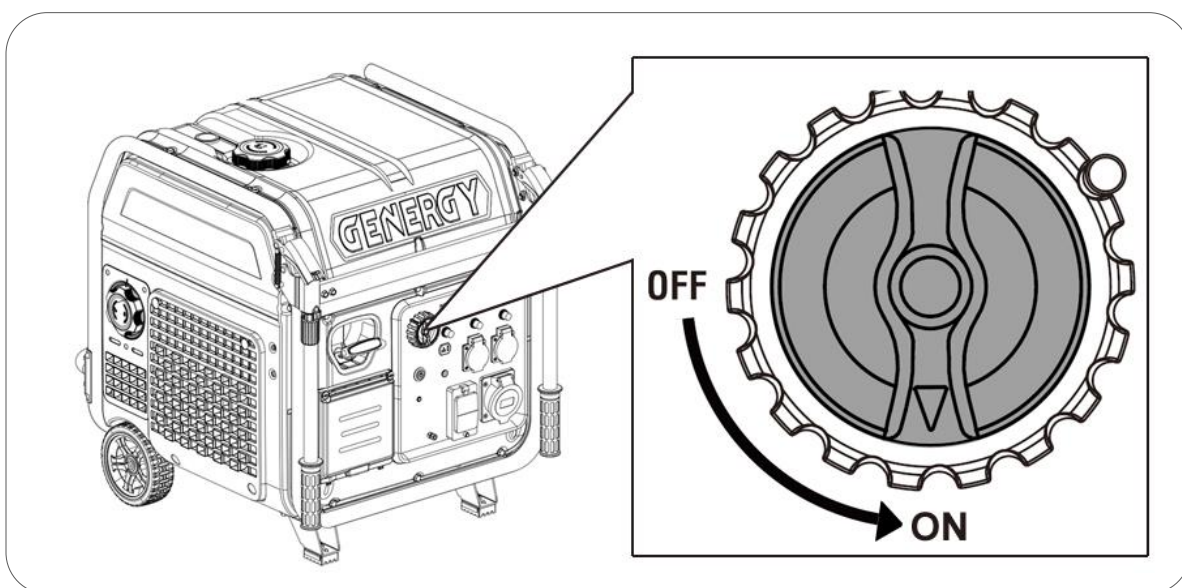
 **ADVERTENCIA:** No llene demasiado el tanque de combustible (no supere el nivel máximo). Después de repostar, asegúrese de que el tapón del depósito está cerrado y asegurado.

 **PRECAUCION:** Evite el contacto con la piel y no respire el vapor del combustible.

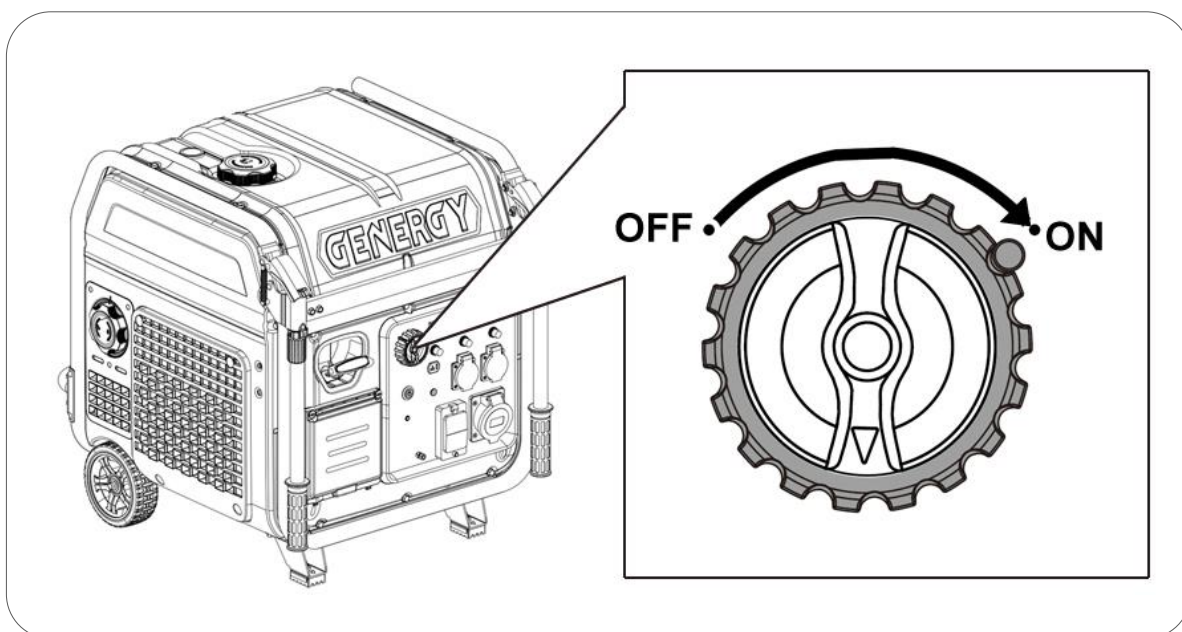
5 Arranque del generador:

5.1 Arranque eléctrico

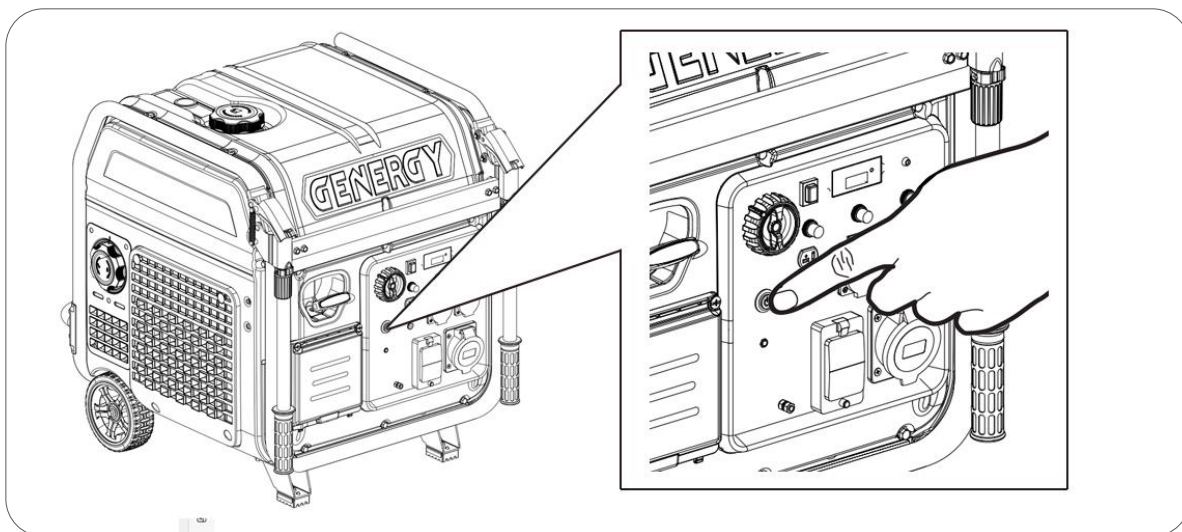
1. Desconecte de los tomacorrientes cualquier aparato o bien asegúrese que su interruptor está en "OFF". El generador tiene que arrancar sin cargas conectadas.
2. Identifique la llave de gasolina (Dial interior de la rueda de selección marcada en gris en el grafico inferior). Gírelo a la posición ON (abierto).



3. Gire el selector OFF/ON (Dial externo marcado en gris en el grafico inferior) a la posición "ON".



4. Realice una pulsación en el botón "START"



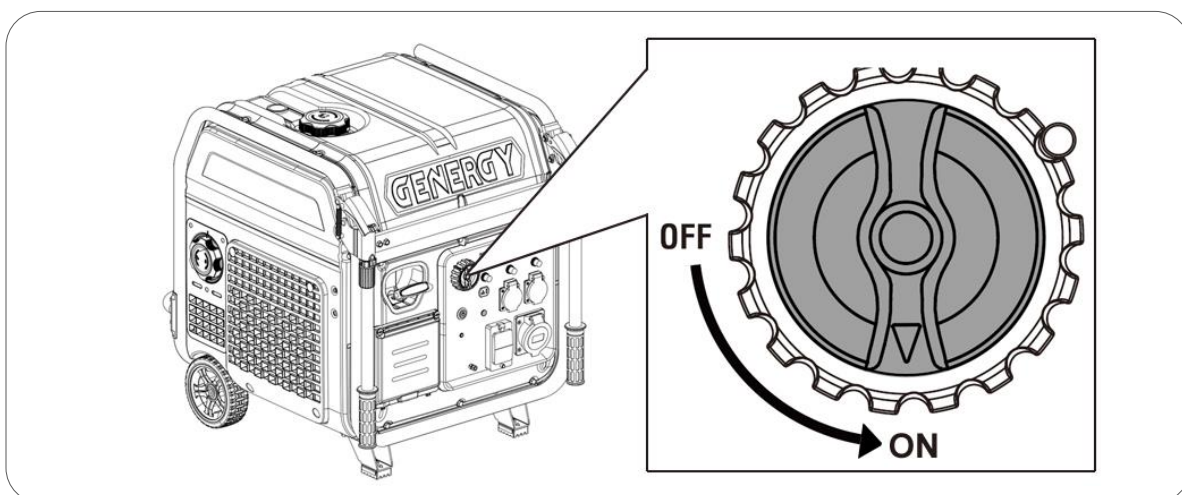
NOTA: Si el generador no logra arrancar al primer intento, espere unos segundos y vuélvalo a intentar.

NOTA: En la primera puesta en marcha de la máquina, o si la máquina ha estado sin uso por mucho tiempo, podría presentar una carga insuficiente para el arranque.

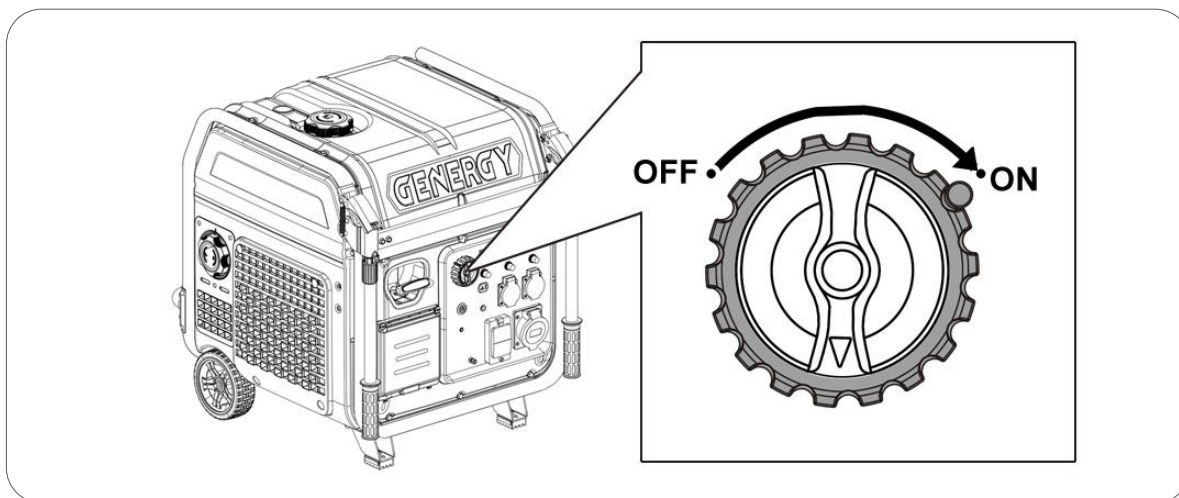
Si observa que la carga de la batería es insuficiente revise el capítulo "Recarga de la batería desde el puerto de carga" de este manual de usuario,

5.2 Arranque manual (solo si no hay batería o esta baja de carga)

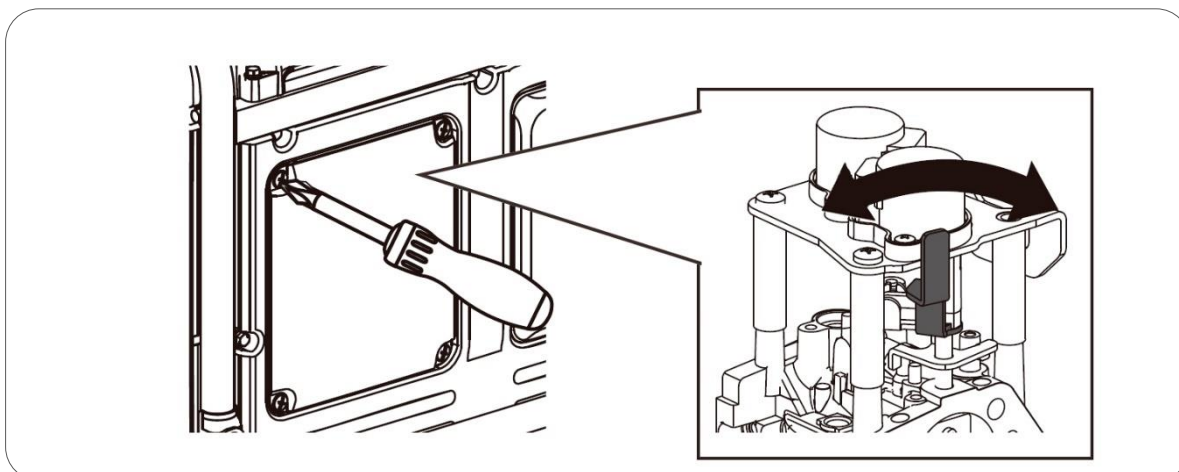
1. Desconecte de los tomacorrientes cualquier aparato o bien asegúrese que su interruptor está en "OFF". El generador tiene que arrancar sin cargas conectadas.
2. Identifique la llave de gasolina (Dial interior de la rueda de selección marcado en gris en el grafico inferior). Gírelo a la posición ON (abierto).



3. Gire el selector OFF/ON (Dial exterior marcado en gris en el gráfico inferior) a la posición "ON".



4. Abra la cubierta de acceso para poder accionar el estrangulador manual (gráfico inferior). Gírelo a la derecha para el arranque en frío.



5. Tire de la maneta de arranque lentamente y hasta el final para calcular el recorrido máximo de la cuerda (y no sobrepasarla posteriormente cuando tire de forma enérgica). Deje recoger la cuerda y finalmente tire de forma enérgica para arrancar el motor.
6. Una vez arrancado el motor gire la palanca del estrangulador totalmente a la izquierda.

NOTA: Si alcanza el final de recorrido de la cuerda de forma brusca podría dañar el muelle de retroceso del tirador o la cuerda y no sería cubierto por la garantía.

NOTA: No suelte la maneta después del tirón para evitar que el tirador pueda golpear la máquina. Acompañe con la mano la maneta hasta que se haya recogido completamente.

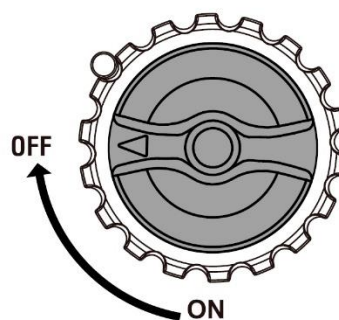
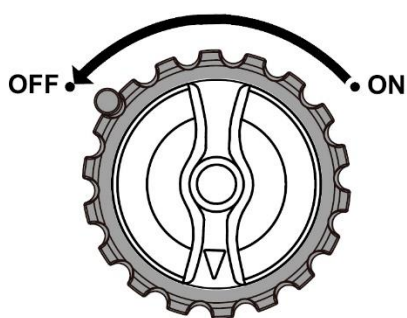
NOTA: Nunca tire de la cuerda de nuevo si el generador está ya arrancado y girando.

NOTA: No deje el dial selector en posición CHOKE u otras posiciones intermedias mientras el motor esté en marcha, caso contrario podría provocar mala combustión, funcionamiento anormal y averías.

NOTA: El estrangulador automático no trabajara si la batería tiene muy poca carga o está dañada. En ese caso debe cerrar el estrangulador manualmente y luego tirar de la cuerda de arranque. La batería se recarga mientras esta el motor arrancado, también puede recargarla con el motor apagado desde la toma externa del panel, ver capítulo “Recarga batería desde el puerto de carga”.

5.3 Parada del generador

1. Desconecte los aparatos eléctricos conectados al generador.
2. Gire el selector multifunción (Dial externo marcado en gris) a la posición “OFF”.
3. Gire la valvula de gasolina (Dial interno marcado en gris) a la posición “OFF”.

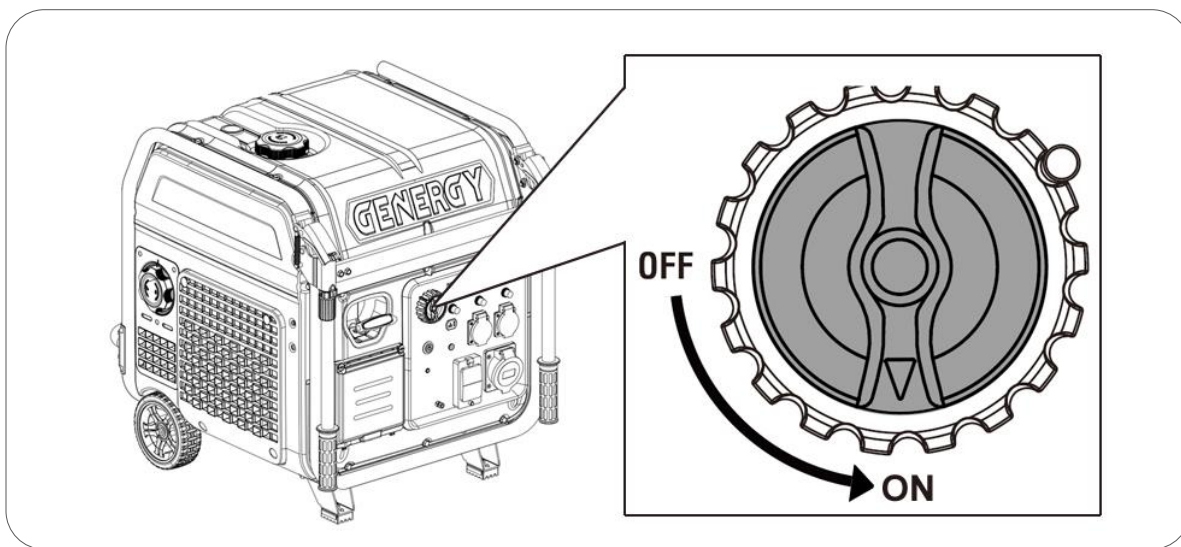


5.4 Arranque por control remoto (CRETA SILENT RC)

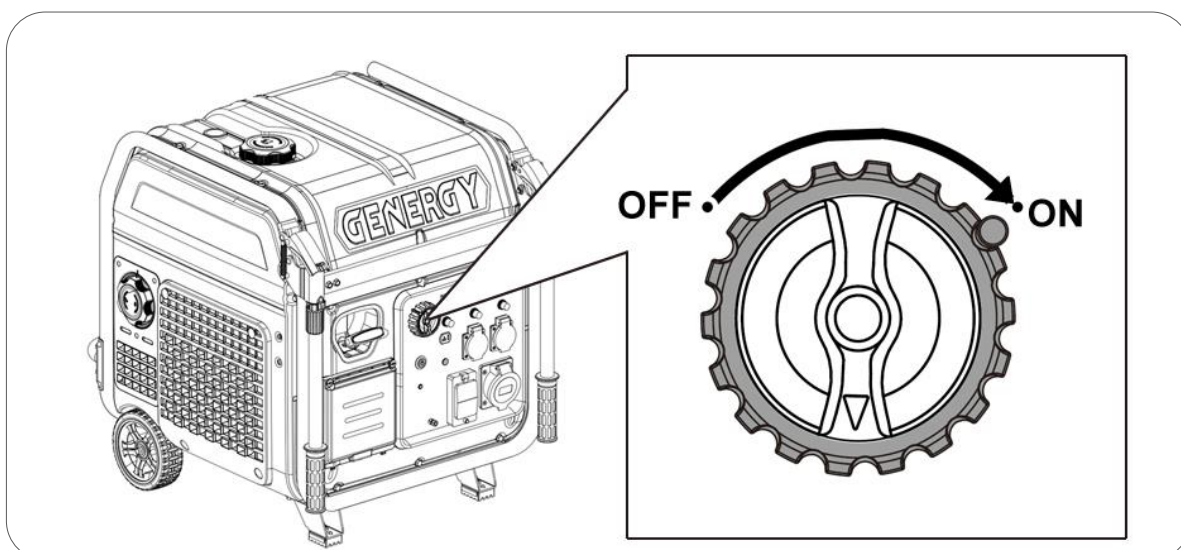
El modelo CRETA SILENT RC permite el arranque a distancia de forma inalámbrica hasta una distancia máxima de 50mts (sin interferencias) mediante un mando.

NOTA: El sistema de control remoto no está incluido en los modelos CRETA SILENT SOL o CRETA SILENT ATS y tampoco puede ser instalado como opción.

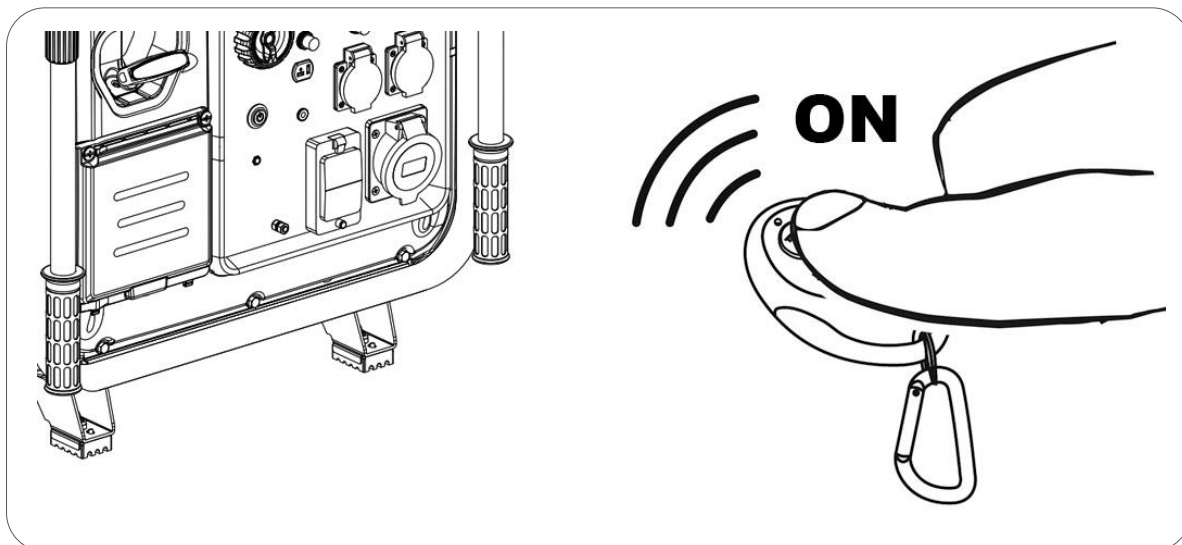
1. Gire la válvula de paso de gasolina hacia "ON".



2. Gire el selector OFF/ON (Dial exterior marcado en gris en el grafico inferior) a la posición "ON".



3. Pulsar **por un segundo** el botón “ON” del mando a distancia. El generador realizara el proceso de arranque de forma automática.



NOTA: No mantenga pulsado el botón “ON” del mando. Solo pulsar por un segundo aproximadamente.

Si el generador no logra arrancar al primer intento, realizara de forma automática otros seis nuevos intentos, simplemente espere. Si el generador no arranca en los seis intentos preprogramados, puede volver a pulsar el botón de “ON” del mando para iniciar otra secuencia de arranques.

Este generador posee un estrangulador automático, por lo que no es necesario accionar ninguna palanca para facilitar el arranque el frio.

NOTA: El estrangulador automático no trabajara si la batería tiene muy poca carga o está dañada. En ese caso debe cerrar el estrangulador manualmente y luego tirar de la cuerda de arranque. La batería se recarga mientras esta el motor arrancado, también puede recargarla con el motor apagado desde la toma externa del panel, ver capítulo “Baja carga de batería”.

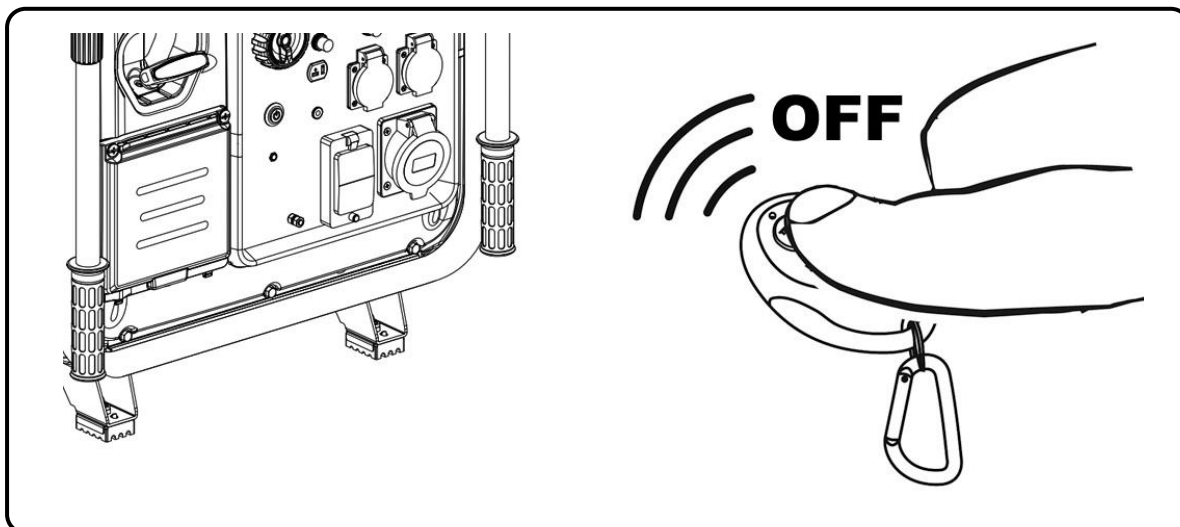
NOTA: Si el generador permanece apagado por más de 24 horas, el generador pasará automáticamente al modo “SLEEP”. Para reactivar el control remoto debe presionar el botón START en el generador. Esta función previene la descarga de la batería.

NOTA: Si el mando no funciona o lo hace de forma incorrecta, reemplace su pila.

Función OPD (Output power delayed): La salida de corriente del generador tiene un retardo de 20 segundos desde que el motor se puso en marcha. De esta manera se evita que el generador arranque con carga conectada.

5.5 Parada por control remoto

Pulse el botón "OFF" del panel de control remoto.



NOTA: Si ya no va a utilizar el generador en las próximas 12 horas cierre la válvula de gasolina y gire la llave a "OFF". **Esta acción previene la descarga de la batería en periodo de inactividad.**

5.6 Sincronizar un nuevo mando RC

NOTA: Para sincronizar un segundo mando —sin cancelar uno existente— siga los pasos 1 a 5, pero omita el paso 3. Tenga en cuenta que solo dos mandos pueden estar sincronizados al mismo tiempo.

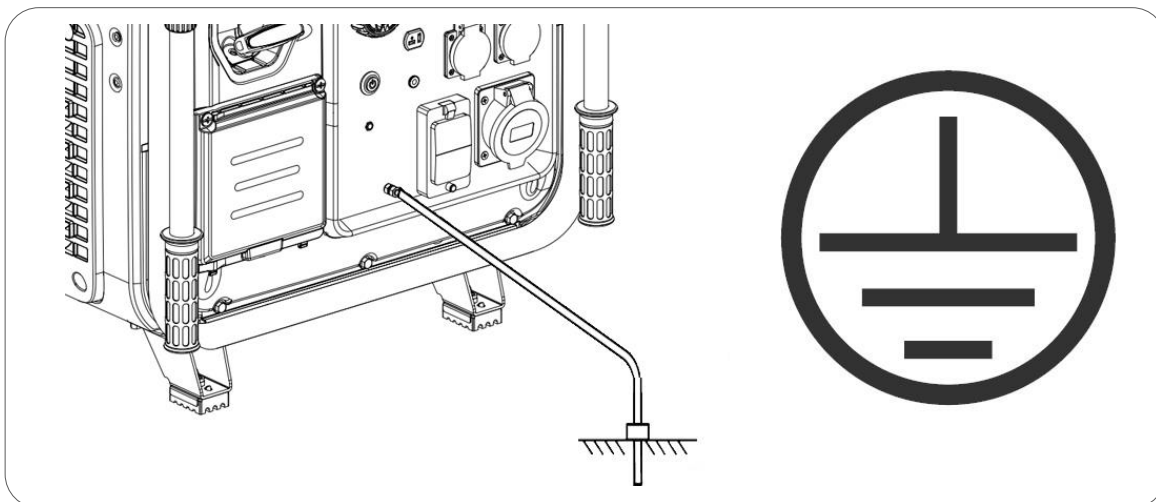
NOTA: Para sincronizar un nuevo mando —cancelando el anterior— siga los pasos 1 a 5, incluyendo el paso número 3.

1. Gire la llave del interruptor general a la posición "ON".
2. Presione el botón "PILOT LAMP" durante más de 3 segundos hasta que se encienda la luz azul.
3. Presione el botón "STOP" del mando durante más de 1 segundo y la luz azul PILOT LAMP parpadeará.
4. Presione el botón "START" del mando durante más de 1 segundo y la luz azul de PILOT LAMP parpadeará.
5. Pulse el botón "PILOT LAMP" y mantenga presionado hasta apagarse, con ello quedaría sincronizado el nuevo mando.

6 Uso del generador y sus protecciones:

Para mejorar el funcionamiento del motor y prolongar la vida útil de la máquina, se recomienda un periodo de “rodaje” de 20 horas sin forzar el generador, con cargas no superiores al 60-70% de la salida máxima del equipo.

⚠ ADVERTENCIA: Asegúrese de conectar la toma de Tierra (pica en Tierra). Si tiene dudas consulte con su electricista.



⚠ ADVERTENCIA: No conecte nunca la salida de la tensión del equipo a un edificio o vivienda (ni aun cuando haya un corte de luz). El retorno de la red principal chocaría con la tensión del generador y provocaría graves daños al equipo, o incluso un incendio.

⚠ ADVERTENCIA: No haga la conexión en paralelo con otros generadores, ambos resultarían dañados y con riesgo de incendio.

🗨 NOTA: No conecte una extensión al tubo de escape.

🗨 NOTA: Cuando se requiere un cable de extensión, asegúrese de usar un cable de goma de buena calidad y de sección adecuada (consulte con su electricista).

🗨 NOTA: Los aparatos que usan un motor (como compresores, bombas de agua, sierras, amoladoras, etc.) requieren hasta 3 veces más potencia para su arranque. Como ejemplo, una bomba de agua de 500W necesitaría un generador de 1500W para su arranque. Verifique que las cargas a conectar no superan la potencia máxima del grupo según esta indicación.

⚠ ADVERTENCIA: Confirme que todos los aparatos eléctricos estén en buenas condiciones de trabajo antes de conectarlos al generador.

Si un aparato eléctrico trabaja de forma anormal, lento o se detiene de repente, pare el generador de inmediato y desconecte el aparato.

6.1 Protecciones de los tomacorrientes

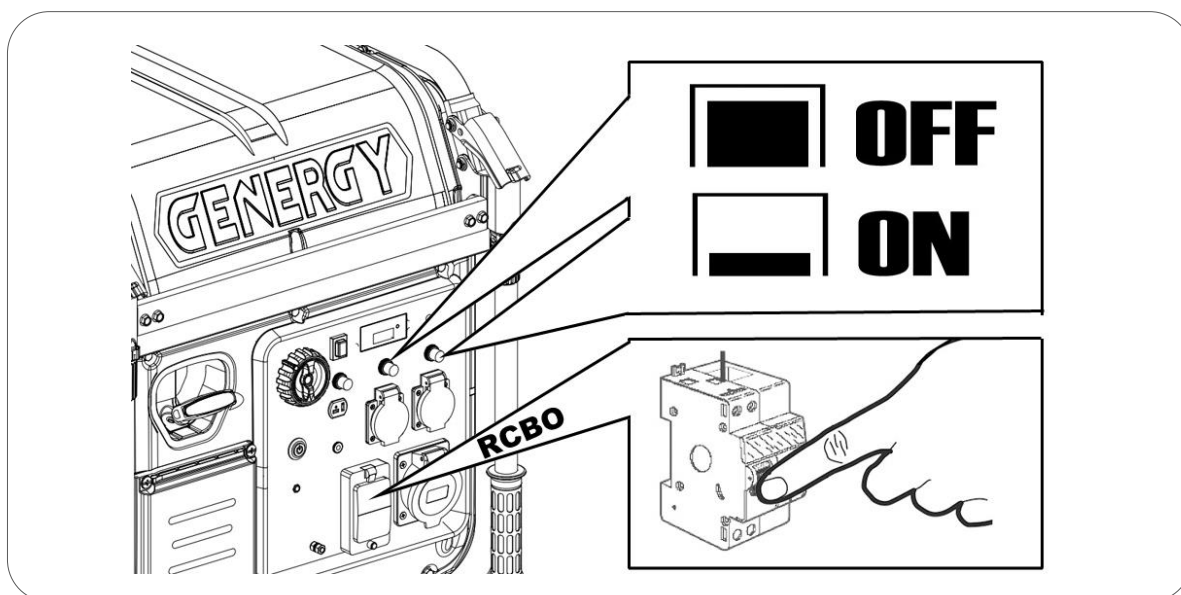
Su generador dispone de protectores por sobrecarga que protegen los tomacorrientes de intensidades superiores.

En caso de superar su capacidad máxima en uno de los tomacorrientes el protector cortara la corriente para evitar que el tomacorriente o el enchufe conectado puedan sobrecalentarse e incendiarse.

- Un tomacorriente de 16A permite sacar un máximo de 3680W (230Vx16A).
- Un tomacorriente de 32A permite sacar un máximo de 7360W (230Vx32A).

En caso de sobrecarga, en primer lugar, desconecte los equipos conectados.

Una vez desconectados los equipos vuelva a rearmar el protector por sobrecargas pulsando para a "ON" para restaurar la salida de tensión del grupo.



Si al conectar los aparatos vuelve a saltar el protector de sobrecarga desista de conectar el aparato. El aparato conectado puede tener un problema o bien supera la capacidad máxima del tomacorriente, o del propio generador.

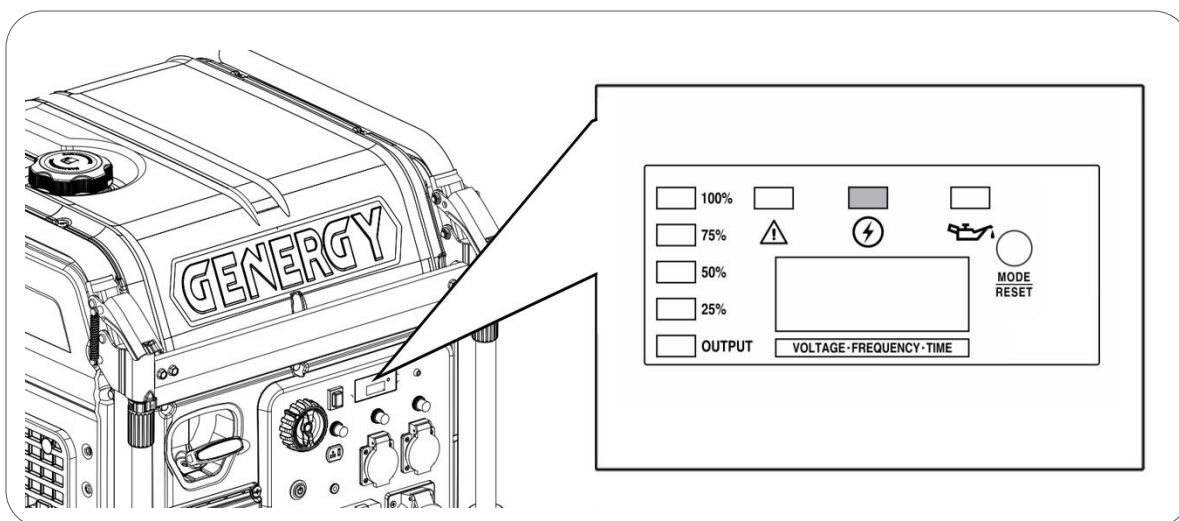
Recuerde que muchos equipos necesitan un consumo extra para su arranque. Los equipos que usan un motor (compresores, bombas de agua, sierras circulares, amoladoras u otros) consumen hasta 3 veces más en arranque. Como ejemplo una bomba de agua de 1000W necesitara 3000W para arrancar, por lo que necesitaríamos un generador no inferior a 3000W. En determinados refrigeradores este efecto puede ser incluso mayor.

El equipo dispone de un diferencial de 30mA (RCBO) que protege frente a fugas de corriente y también a las personas de descargas. Este dispositivo además protege contra sobrecarga máxima soportada por el equipo. En caso de salto del RCBO, revise posibles problemas en el circuito eléctrico, y una vez solventado restaura la salida. El generador necesita una correcta conexión a tierra independiente para que el RCBO trabaje de forma correcta

6.2 Pantalla de control digital

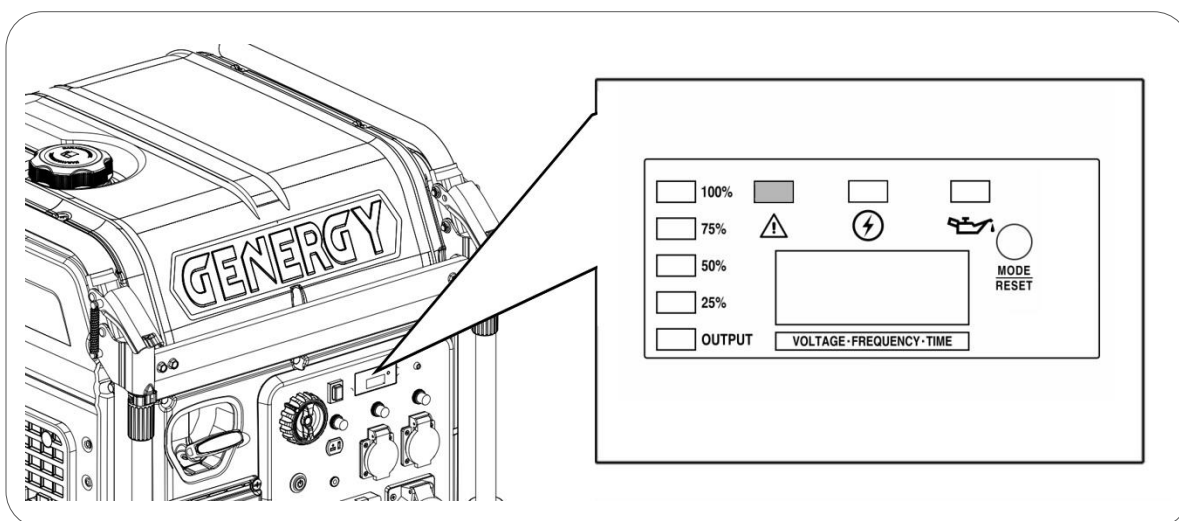
Piloto central: Funcionamiento correcto

Se enciende después de arrancar el equipo y si el funcionamiento es normal.



Piloto izquierdo: Sobrecarga del generador

Si el generador es sobrecargado el piloto de sobrecarga se encenderá. En caso de sobrecarga el motor continuará en marcha, pero la salida de electricidad se cortará.



En caso de sobrecarga seguir estos pasos:

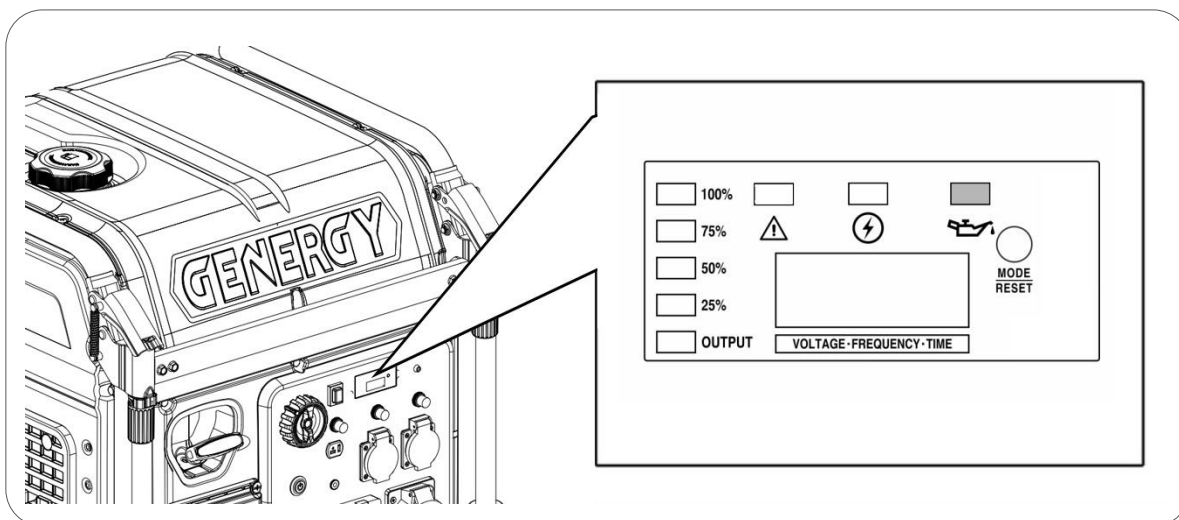
1. Retirar los aparatos en carga.
2. Pulsar el botón "RESET" según la figura superior.
3. Conectar una carga inferior a la potencia nominal del equipo.

NOTA: Un filtro de aire sucio afectará a la potencia máxima del equipo marcando la alarma de sobrecarga incluso con potencias inferiores a la nominal.

Piloto derecho: Fallo de aceite

El sistema de alerta de aceite está diseñado para evitar daños en el motor causados por una cantidad insuficiente de aceite en el cárter

El piloto izquierdo del panel se encenderá ante un bajo de nivel de aceite y el motor se apagará por seguridad. El motor no arrancará hasta que el nivel de aceite vuelva a ser correcto.

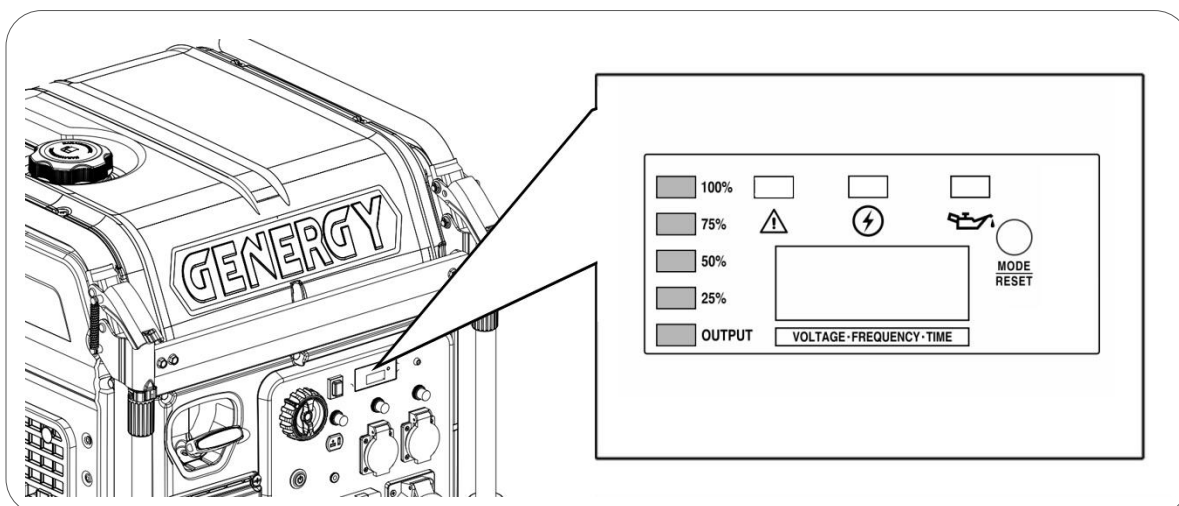


NOTA: La protección por falta de aceite debe ser considerada como una seguridad extrema. Es responsabilidad única del usuario revisar el nivel de aceite antes de cada uso como se indica en el capítulo de mantenimiento de este manual. Es poco probable que esta seguridad pueda fallar, pero si lo hace, los daños en el motor serían muy importantes. La responsabilidad única de la avería sería del cliente por falta de mantenimiento y la reparación sería excluida de la garantía.

NOTA: El sistema de alerta solo actúa por fallo de nivel, no puede proteger en casos como aceite inadecuado o si está en malas condiciones.

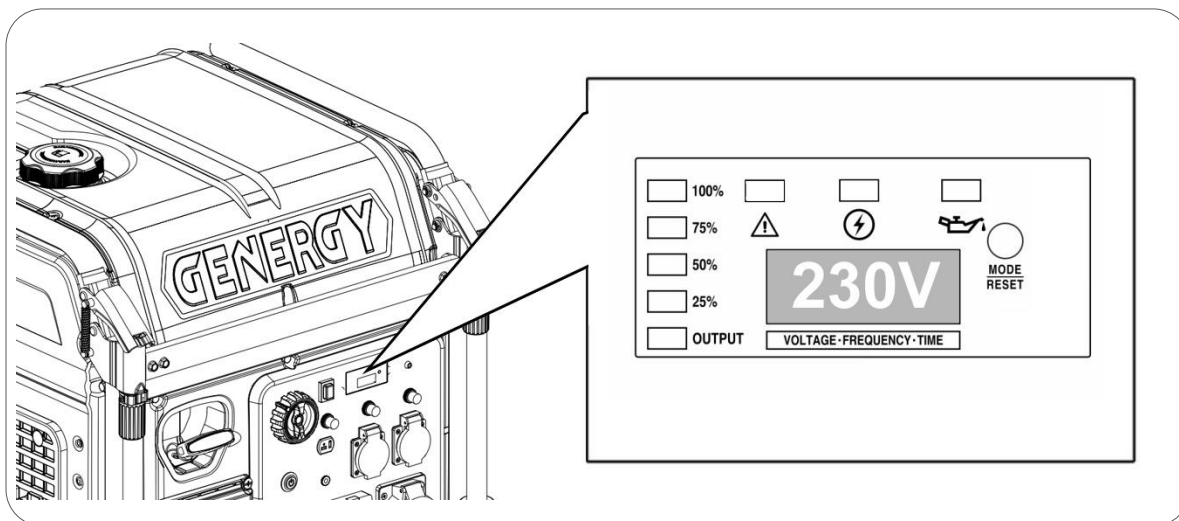
Columna lateral izquierda: Indicador de carga del generador

Muestra una aproximación de la carga usada en el generador respecto de la total, esta función es meramente orientativa.



Pantalla central: Indicador de parámetros

Durante el uso la pantalla central puede mostrar Voltaje, Frecuencia y Horas de trabajo. Para intercambiar entre los parámetros pulse el botón "RESET".



6.3 Modificación del carburador para gran altitud

A grandes altitudes, la mezcla normal de aire-combustible del carburador será demasiado rica. Se reducirá el rendimiento y el consumo de combustible aumentará. Si el generador funciona siempre en la altitud por encima de los 1.500 metros, póngase en contacto con un Servicio Autorizado Genergy para modificar el carburador (este servicio no es garantía por tanto sería presupuestado).

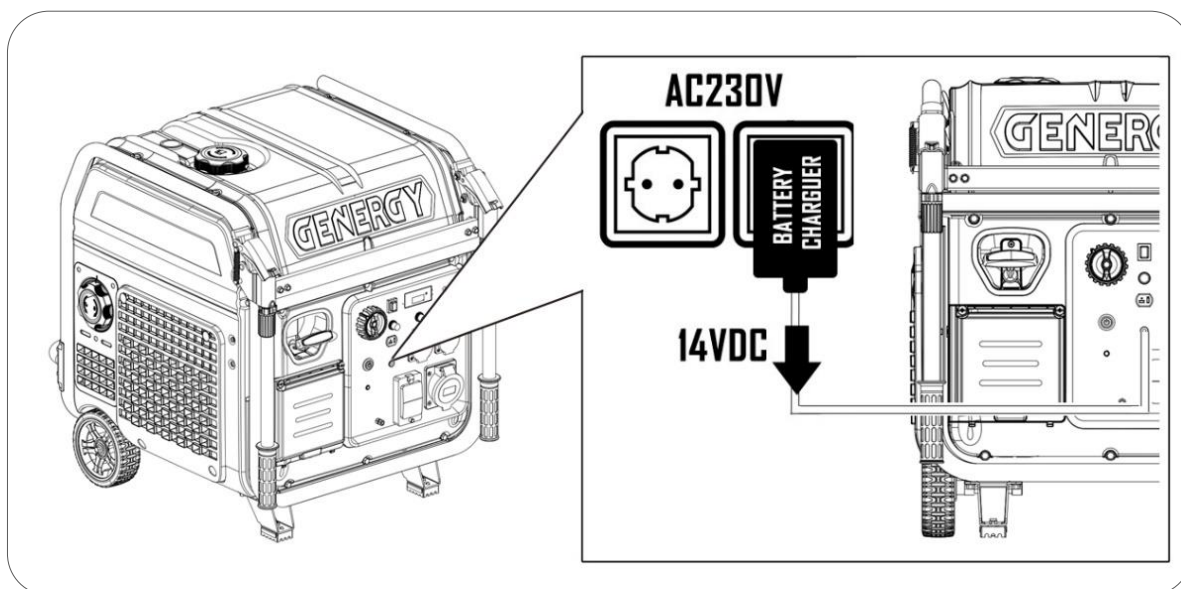
Tenga en cuenta que incluso con una modificación en el carburador la potencia disminuirá a razón de un 3.5% cada 300mts de altitud.

NOTA: Si el carburador ha sido modificado para funcionar a gran altitud, la mezcla de aire-combustible será demasiado pobre para funcionar a bajas altitudes. El funcionamiento a baja altura puede causar que el motor se sobrecaliente y se dañe seriamente. Sería necesario devolver el carburador a su estado original.

6.4 Recarga de la batería desde el puerto de carga

Los modelos CRETA SILENT SOL y CRETA SILENT RC disponen de un puerto de carga (CHARGER PORT) para recargar la batería del generador. El modelo CRETA SILENT ATS no dispone de puerto de carga, ya que la batería del generador queda alimentada desde el cuadro externo ATS a través del conector de comunicación de 7 hilos.

Conecte el cargador de baterías (incluido con la maquina) a una toma de corriente domestica de 230V. El otro extremo conéctelo en la toma puerto de carga (CHARGER PORT) del panel de control del generador. La carga puede durar en torno a 4 horas.



NOTA: No utilice cargadores o fuentes de alimentación diferentes al original. Si necesita reemplazar el cargador, adquiera uno original a su proveedor GENERGY.

Si no dispone de una toma de red 230V, puede arrancar el generador de forma manual y dejarlo en funcionamiento unas horas. La batería también se recarga desde el motor.

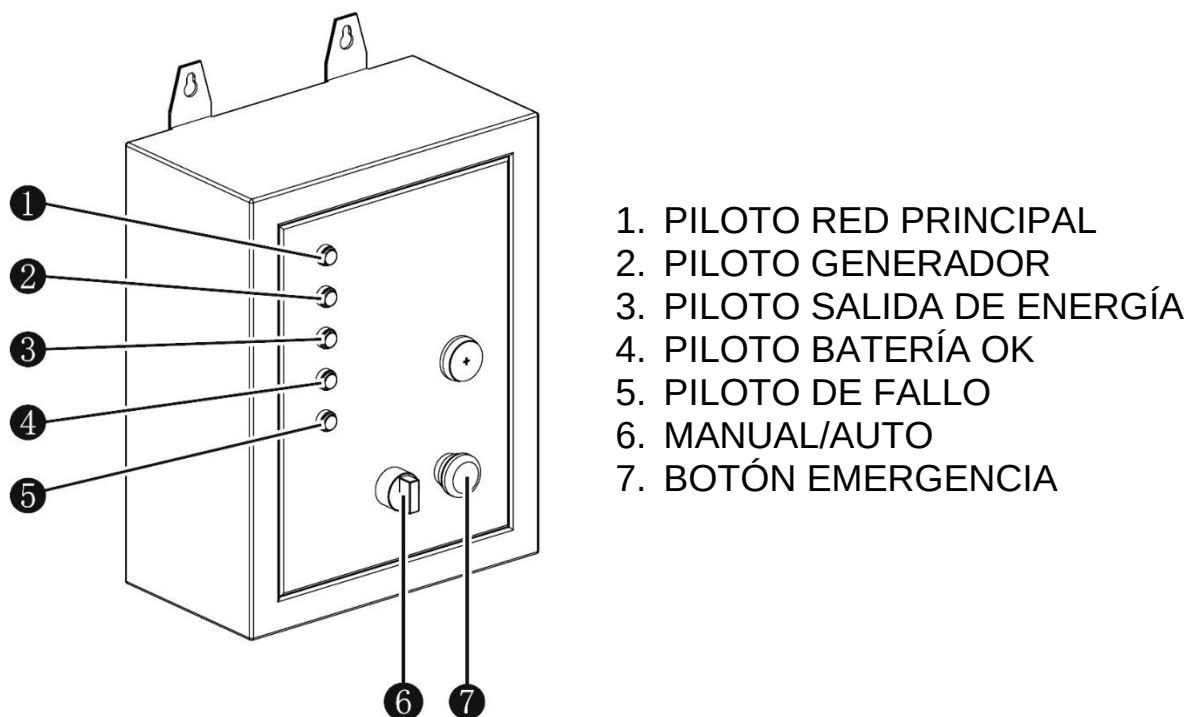
Si la batería sigue sin funcionar tras la carga llévela a un taller para su revisión, es posible que se encuentre en mal estado y sea necesario su reemplazo.

7 Modo fallo de red (CRETA SILENT ATS):

7.1 Introducción

El sistema ATS (interruptor automático de transferencia) permite controlar las funciones de arranque y pare del generador, así como la alternancia entre la energía del generador y la de la red general. La comunicación de ordenes entre el generador y el cuadro se realiza de un cable de comunicación de siete líneas. El Usuario puede también elegir entre usar el generador manualmente o automáticamente, y también seleccionar a voluntad la energía de red o de generador.

7.2 Componentes del panel del cuadro ATS



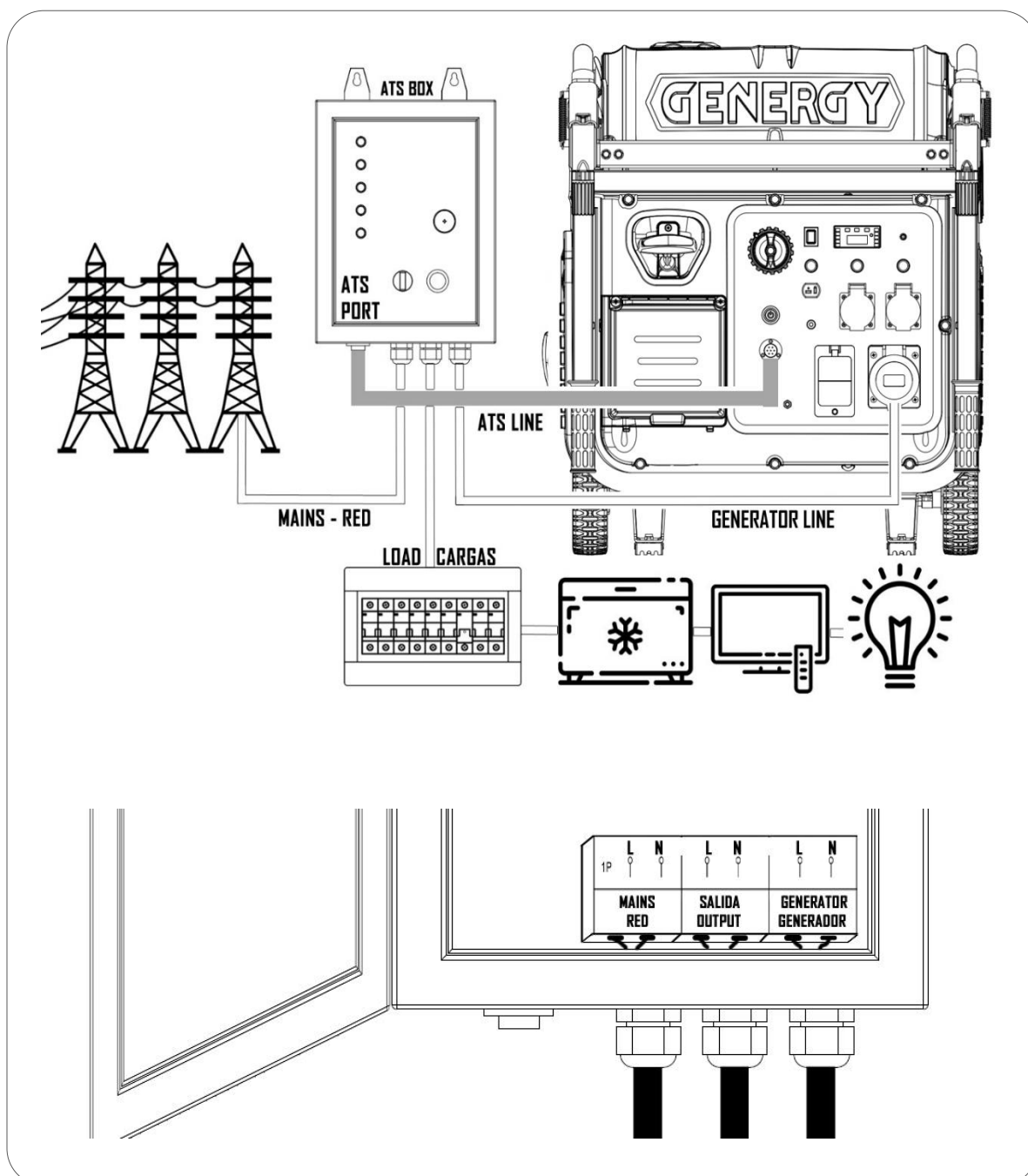
7.3 Parámetros eléctricos

Fuente alimentación: DC10-15V
Voltaje de entrada: AC220-240V
Frecuencia nominal: 50-60Hz
Wattios máximos: 10000W
Intensidad máxima: 45A
Conexión entre el cuadro ATS y el generador.

7.4 Instalación

 **PELIGRO:** El conexionado del generador y el cuadro ATS debe hacerlo un electricista cualificado y siempre sin presencia de red.

 **NOTA:** El presente esquema es simplemente como referencia y tiene como único fin la comprensión del funcionamiento. Es responsabilidad única del usuario que la instalación se realice cumpliendo las normativas eléctricas de cada país o región.



 **NOTA:** El cuadro ATS solo puede ser conectado al generador CRETA SILENT ATS. No puede ser conectado con las versiones SILENT SOL-RC ni con ningún otro modelo.

7.5 Principio de funcionamiento

El ATS tiene dos modos de funcionamiento, manual y automático:

Modo Manual: Cuando la caja de control ATS está en modo manual, el generador no será controlado de forma automática.

- Si hay energía de red y de generador al mismo tiempo, la salida de corriente será la del generador.
- Si solo hay energía de generador, la salida de corriente será la del generador.
- Si solo hay energía de red, la salida de corriente será la de red.

Modo Automático: La caja de transferencia ATS controlara el generador. Cuando hay energía de red siempre será la salida de energía prioritaria y el generador se mantendrá en reposo. Cuando hay un corte de suministro en la red el generador arrancará de forma automática y proveerá la energía.

Ante un corte de electricidad el generador dispone de 40 segundos para arrancar, tiempo en el que se sucederán hasta un máximo de seis intentos de arranque. Si el motor no consigue arrancar en los 40 segundos caerá el modo de error y el **PILOTO DE FALLO** se iluminará por un minuto.

La parada del generador tiene también un límite asignado de 10 segundos. Si el generador no para en ese tiempo el sistema entenderá que hay un fallo de parada y el **PILOTO DE FALLO** parpadeará.

El **PILOTO DE FALLO** es simplemente informativo, no afecta al uso.

Cuando la red principal está alimentando las cargas, al mismo tiempo alimenta la batería del generador con CC14.4V. De modo que el nivel optimo de la carga de la batería del generador está garantizada, aunque el generador permanezca sin actividad durante largos periodos de tiempo.

7.6 Operación

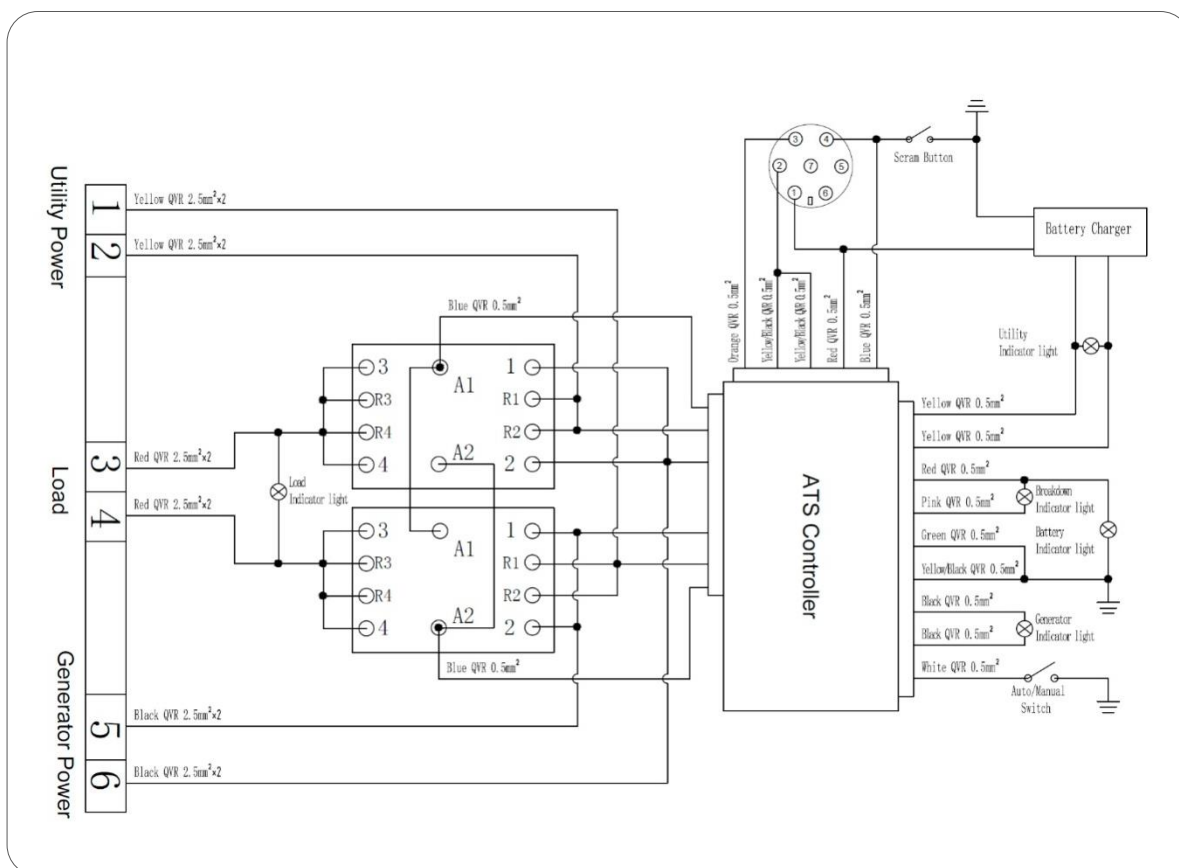
Modo manual:

1. Gire y libere el botón de seguridad.
2. Seleccione en el selector (6) modo manual.
3. Arranque el generador.

Modo automático:

1. Gire y libere el botón de seguridad.
2. Seleccione en el selector (6) modo automático.

7.7 Diagrama



Acerca del combustible:

NOTA: Asegúrese que el generador arranca al menos cada dos meses. Caso contrario realice un arranque manual y mantenga el grupo arrancado por unos minutos para garantizar que la gasolina de la línea de admisión se ha renovado.

NOTA: Si el grupo no se usa, o se usa muy poco, asegúrese que la misma gasolina no permanece en el tanque más de un año, caso contrario reemplácela.

NOTA: Si es consciente que el grupo no va a trabajar durante largos periodos opte por llenar absolutamente el tanque. La gasolina acelera su degradación en contacto con el oxígeno, si el tanque está completamente lleno, la degradación será más lenta. También puede usar un estabilizador de gasolina para retrasar la degradación.

NOTA: GENERGY no se responsabilizará en ningún caso de daños personales o en bienes que puedan derivarse de la falta de suministro por un fallo del generador.

Si tiene cualquier tipo de duda contacte con nosotros en spv@sg-group.es.

8 Modo auto fotovoltaica (CRETA SILENT SOL):

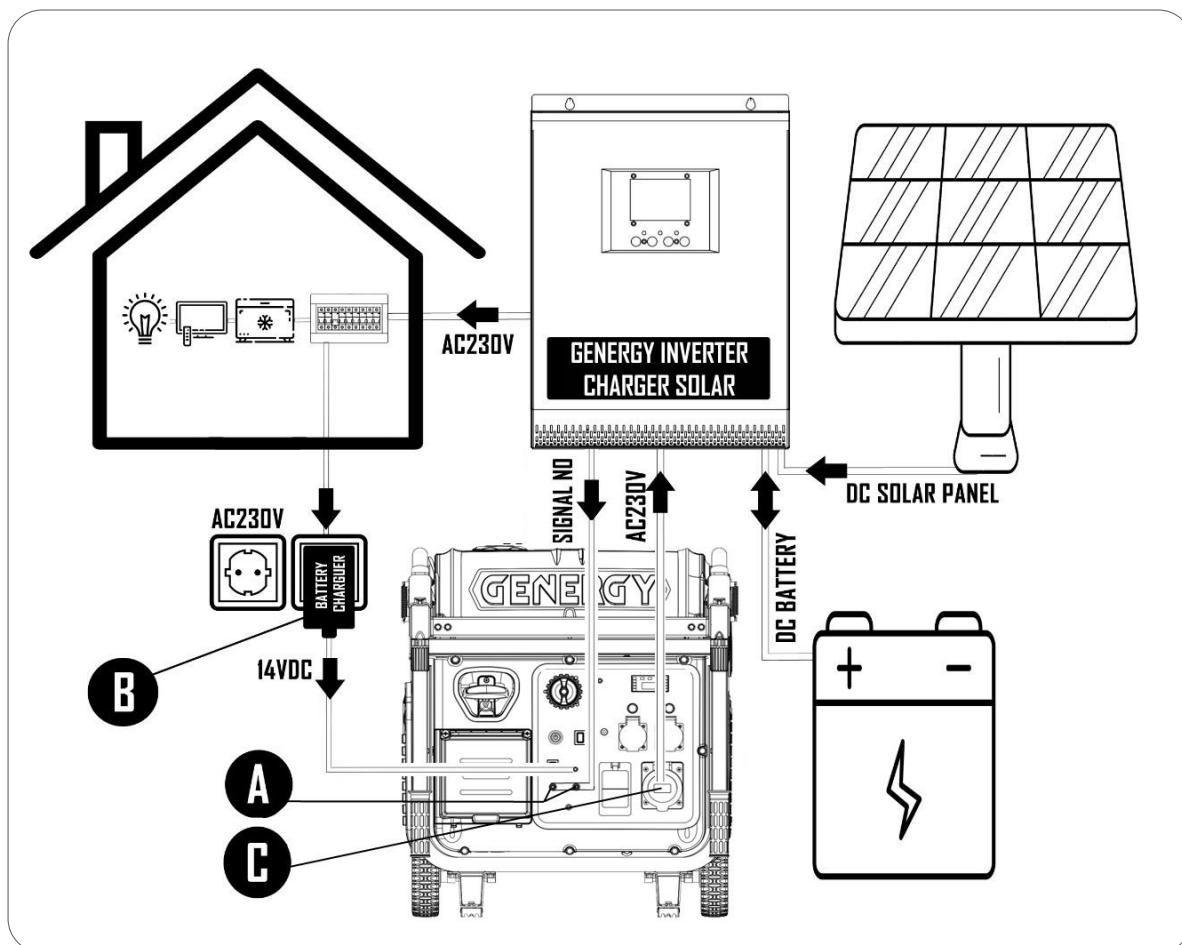
8.1 Introducción

El modelo CRETA SILENT SOL ha sido diseñado específicamente para dar apoyo a una instalación solar en casos excepcionales en los que la energía solar sea insuficiente. El generador está preparado para arrancar y apoyar al sistema fotovoltaico, así como detenerse cuando este respaldo ya no sea necesario. El arranque y pare del generador se ejecuta a demanda del controlador solar mediante un contacto NA (Normalmente Abierto).

8.2 Instalación

⚡ PELIGRO: El conexionado del generador a instalación solar debe realizarlo únicamente el instalador del sistema fotovoltaico, ya que es necesario fijar parámetros para el arranque y pare del generador en el controlador solar.

🗨️ NOTA: El presente esquema es simplemente como referencia y tiene como único fin la comprensión del funcionamiento. Es responsabilidad única del usuario que la instalación se realice cumpliendo las normativas eléctricas de cada país o región.



A Contacto NA (Normalmente Abierto) para arranque y pare del generador:

- **Contacto abierto:** Generador en reposo.
- **Contacto cerrado:** Generador arranca y se mantiene arrancado hasta que el contacto vuelve a abrirse.

Tenga en cuenta que no todos los controladores solares están preparados para trabajar con un generador de apoyo. Consulte con su instalador solar o con el proveedor del inversor.

Secuencia de arranque: A la cerrar el contacto del generador inicia el intento de arranque. Caso de no conseguirlo en el primer intento se sucederán nuevos intentos hasta un máximo de cinco. Si el generador no logra arrancar en los cinco intentos pre programados caerá en modo de error.

B Soporte a la batería del generador: El generador dispone en el panel de un puerto de carga para recargar o mantener la batería del generador. Conecte el cargador suministrado a la red de 230V y su salida de 14V DC al puerto de entrada del panel de control.

 **NOTA:** No use un cargador diferente al original. Si tiene que reemplazar el cargador original adquiera uno original de GENERGY.

C Use la toma de 32A como alimentación hacia el Inversor: Esta toma de 32A permite la salida máxima de potencia del generador.

 **NOTA:** No utilice una toma de las dos tomas de 16A para este fin, ya que estaría limitado la salida de potencia a 16A (3680W).

Acerca del combustible:

 **NOTA:** Asegúrese que el generador arranca al menos cada dos meses. Caso contrario realice un arranque manual y mantenga el grupo arrancado por unos minutos para garantizar que la gasolina de la línea de admisión se ha renovado.

 **NOTA:** Si el grupo no se usa, o se usa muy poco, asegúrese que la misma gasolina no permanece en el tanque más de un año, caso contrario reemplácela.

 **NOTA:** Si es consciente que el grupo no va a trabajar durante largos periodos opte por llenar absolutamente el tanque. La gasolina acelera su degradación en contacto con el oxígeno, si el tanque está completamente lleno la degradación será más lenta. También puede usar un estabilizador de gasolina para retrasar la degradación.

 **NOTA:** GENERGY no se responsabilizará en ningún caso de daños personales o en bienes que puedan derivarse de la falta de suministro por un fallo del generador.

Si tiene cualquier tipo de duda contacte con nosotros en spv@sg-group.es.

9 Mantenimiento:

El propósito del programa de mantenimiento es mantener el generador en buen estado de funcionamiento y alcanzar la máxima vida útil del equipo.



PELIGRO: Detenga el motor antes de realizar cualquier mantenimiento. Si necesita arrancar el motor para alguna comprobación, asegúrese que el área esté bien ventilada. Los gases de escape contienen monóxido de carbono venenoso.



NOTA: Utilice repuestos originales GENERGY o en su defecto componentes de calidad demostrada para el mantenimiento.

Programación de mantenimiento:

SERVICIO	PERIODOS DE MANTENIMIENTO
Aceite del motor	Revisar nivel antes de cada uso. El primer cambio de aceite tras 20 horas de rodaje. Sucesivos cambios de aceite cada 100 horas de uso.
Filtro de aire	Revisar y limpiar cada 50 horas. Reemplazar a las 250 horas como máximo, o antes si se observa deterioro.
Bujía	Limpiar y ajustar electrodo cada 50 horas. Reemplazar a las 250 horas o antes si se observa deterioro.
Válvulas de motor*	Ajustar cada 500 horas*
Cámara de combustión*	Limpiar cada 500 horas*
Tanque de combustible*	Limpiar cada 500 horas*
Manguera de combustible*	Reemplazar cada dos años o antes si se observa algún deterioro*



NOTA: Realice el mantenimiento con más frecuencia cuando el equipo se use en lugares con mucho polvo o muy altas temperaturas.



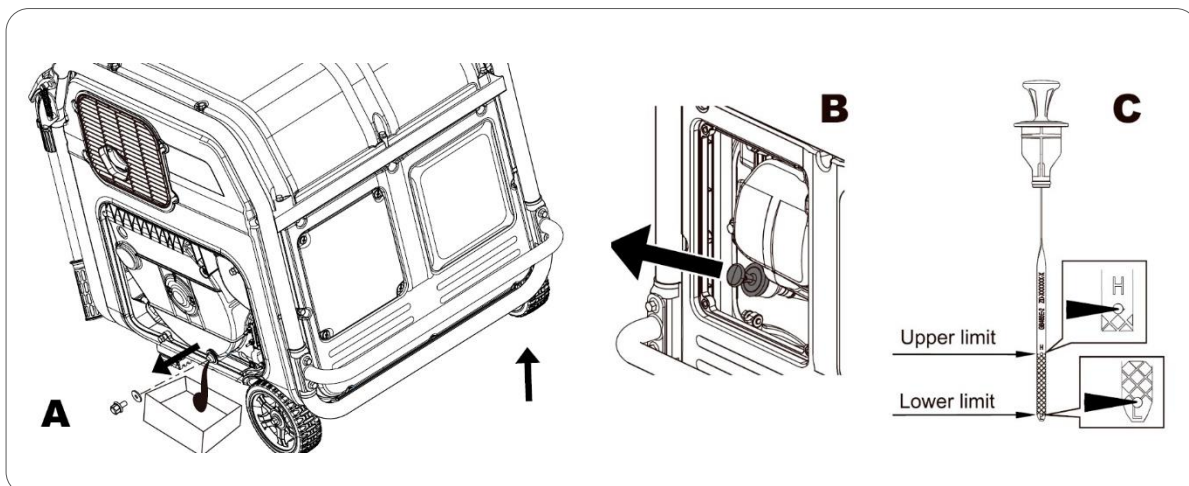
NOTA: Los servicios marcados con asterisco deben ser realizados por un servicio GENERGY o un taller cualificado. Guarde comprobante de las operaciones realizadas por taller.



NOTA: La falta de cumplimiento de los servicios de mantenimiento acortará la vida del generador y producirá averías que no serán cubiertas por la garantía. No se atenderá garantía si no se cumple con el plan de mantenimiento detallado, salvo que haya sido autorizado a saltarse un servicio por GENERGY o un Servicio Autorizado GENERGY.

9.1 Cambio del aceite

1. Mantenga el motor en marcha por 5 o 10 minutos para que el aceite alcance algo de temperatura y disminuya su viscosidad (más líquido). De este modo será más fácil extraerlo por completo.
2. Coloque un recipiente adecuado bajo el orificio de drenaje de aceite para recoger el aceite usado según la figura A.
3. Desenrosque el tornillo de drenaje de aceite girando en sentido inverso a las agujas del reloj, reserve el tornillo y su junta.
4. Suelte el tapón de llenado de aceite para que el motor tome aire y la expulsión del aceite sea más rápida según la figura B.
5. Haga girar el motor tirando suavemente de la cuerda de arranque para que caiga la mayor parte de aceite alojado en partes móviles del motor.



6. Una vez todo el aceite ha sido extraído, coloque de nuevo el tornillo de drenaje con su junta y limpie derrames de aceite si los hubiera.
7. Vuelva a llenar con el aceite recomendado según las figuras B y C. Para más información revise el capítulo de “carga de aceite de lubricación en el motor” de este manual.

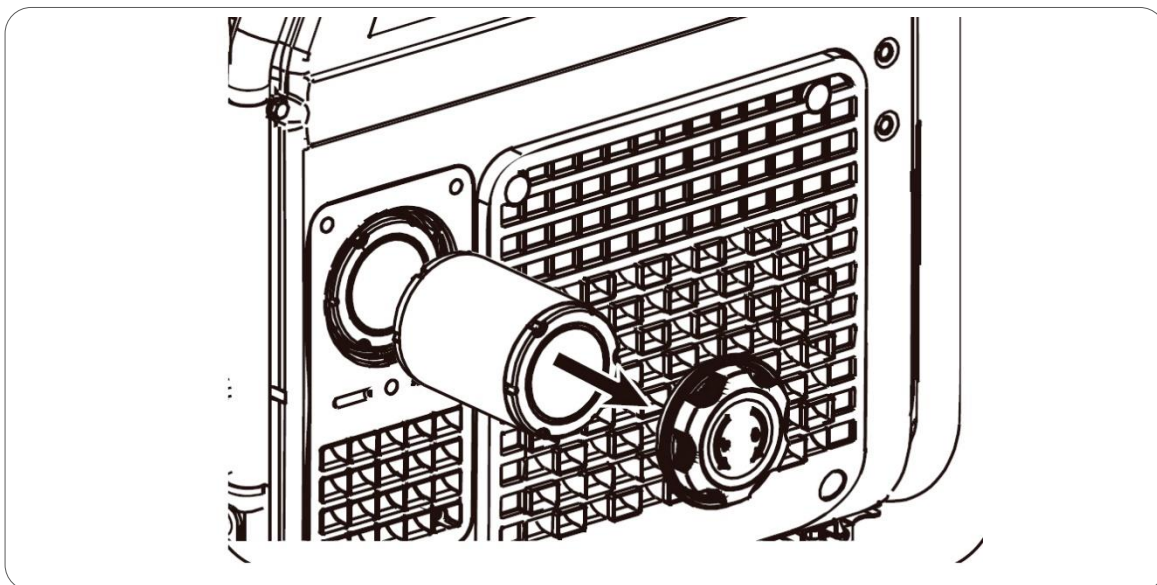
9.2 Mantenimiento del filtro de aire

NOTA: Un filtro de aire sucio restringirá el flujo de aire en el carburador lo que provocará una incorrecta combustión que puede provocar serios problemas al motor. Limpie el filtro con regularidad según el plan de mantenimiento de este manual, y con más frecuencia en áreas con mucho polvo.

NOTA: Nunca haga funcionar el generador sin el filtro de aire, de lo contrario se traducirá en una rápida abrasión del motor.

⊘ ADVERTENCIA: No use gasolina o disolventes de bajo punto de ignición para la limpieza del filtro. Son inflamables y explosivos bajo ciertas condiciones.

1. Gire la tapa del filtro y extráigala hacia afuera.
2. Saque el cartucho filtrante.



3. Limpie el filtro de esponja exterior en una solución de jabón y agua, déjelo secar por completo.
4. Golpee suavemente el filtro interior de papel para retirarle la capa de suciedad. Reemplácelo si esta muy sucio o nota que el motor pierde fuerza o trabaja un algo ahogado.

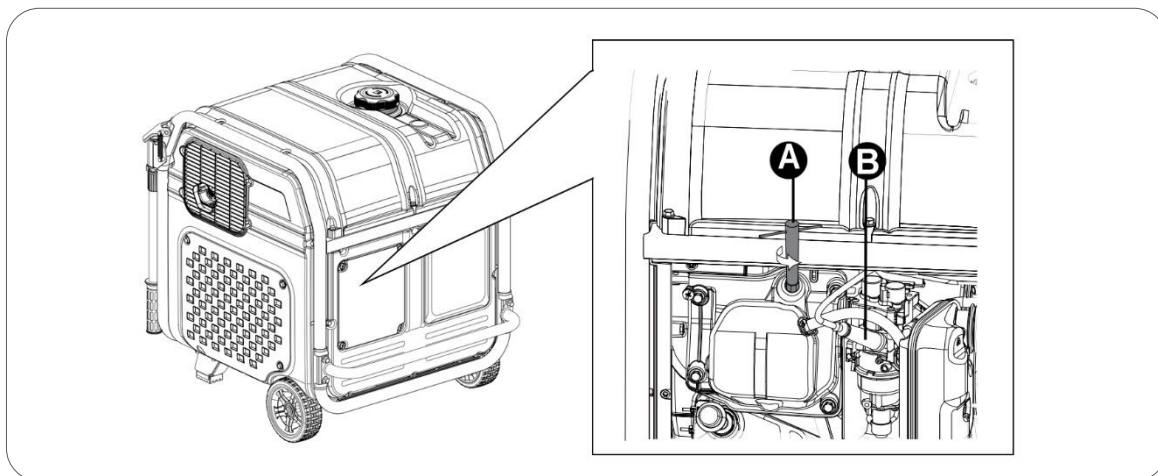
🗨 NOTA: El filtro de aire es una parte esencial que afecta al rendimiento del equipo y a las emisiones. Cualquier modificación está prohibida.

Hacer funcionar el generador sin filtro de aire o instalado de forma incorrecta causará un desgaste severo y graves daños en el motor. En todos estos casos se anularía la garantía total de la máquina.

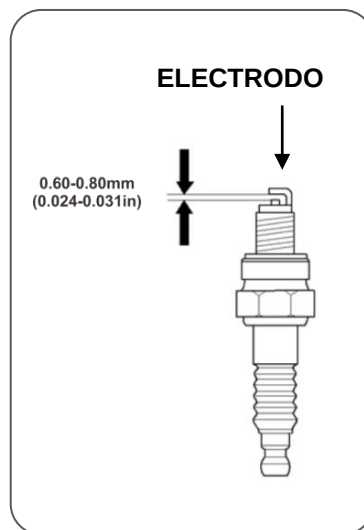
9.3 Mantenimiento de la bujía

Recomendación bujías: **TORCH F6RTC**, **NGK BP7ES**, **BOSCH WR3C**.

1. Desconecte la pipeta o capuchón de la bujía (**B**) tirando de ella.
2. Con la ayuda de la llave de bujías (**A**) extraiga la bujía desenroscándola del motor (gire en sentido contrario a las agujas del reloj).



3. Inspeccione visualmente la bujía. Cambie a una nueva si su aislante está agrietado o astillado. Limpie con un cepillo de alambre fino el electrodo para limpiar los depósitos de suciedad.
4. Mida la distancia del electrodo con una galga. Valor normal 0,6-0,8 mm, Ajuste la abertura con cuidado si el valor no es correcto.
5. Vuelva a colocar con cuidado la bujía, iniciando el roscado con la mano para evitar que se dañen las roscas. Una vez roscada la bujía hasta el final de la rosca realice el apriete final:



- Bujías nuevas: 1/2 vuelta con la llave de bujías.
- Las bujías usadas: de 1/8 a 1/4 de vuelta con la llave bujías.

6. Vuelva a instalar la pipeta o capuchón de la bujía.

NOTA: La bujía debe estar firmemente apretada. Una bujía poco ajustada puede calentarse, incluso podrá dañar el motor. Del mismo modo un apriete excesivo puede dañar la bujía y peor aún la rosca de la culata del motor.

10 Transporte y almacenaje:

10.1 Transporte del generador

Para evitar derrames de combustible durante el transporte mantenga siempre la válvula de gasolina cerrada. Fije la máquina para que no pueda desplazarse.

NOTA: Nunca ponga de lado o bocabajo la máquina para transportarla, manténgala en todo momento en su posición natural de trabajo.

PELIGRO: Nunca utilice el generador dentro del vehículo de transporte. El generador debe utilizarse únicamente en buenas condiciones de ventilación.

PELIGRO: No deje su vehículo estacionado al sol durante mucho tiempo con el generador en su interior. El aumento excesivo de temperatura podría evaporar la gasolina y formar un ambiente explosivo en el vehículo.

ADVERTENCIA: No llene en exceso el tanque si se va a transportar el equipo.

PRECAUCION: Vacíe el tanque de combustible, cuando el generador se traslade por carretera muy bacheada o campo a través.

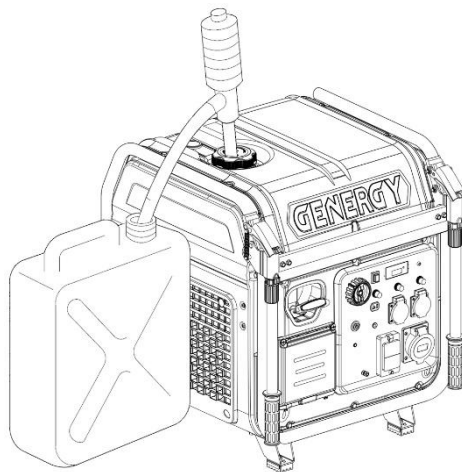
10.2 Almacenaje del generador

La gasolina pierde sus propiedades si está estancada por mucho tiempo y deja residuos que pueden atascar los pasos del carburador impidiendo el arranque tras un descanso temporal. Si vamos a dejar de usar el grupo temporalmente (2-3 meses en adelante) es necesario extraer toda la gasolina del tanque y carburador.

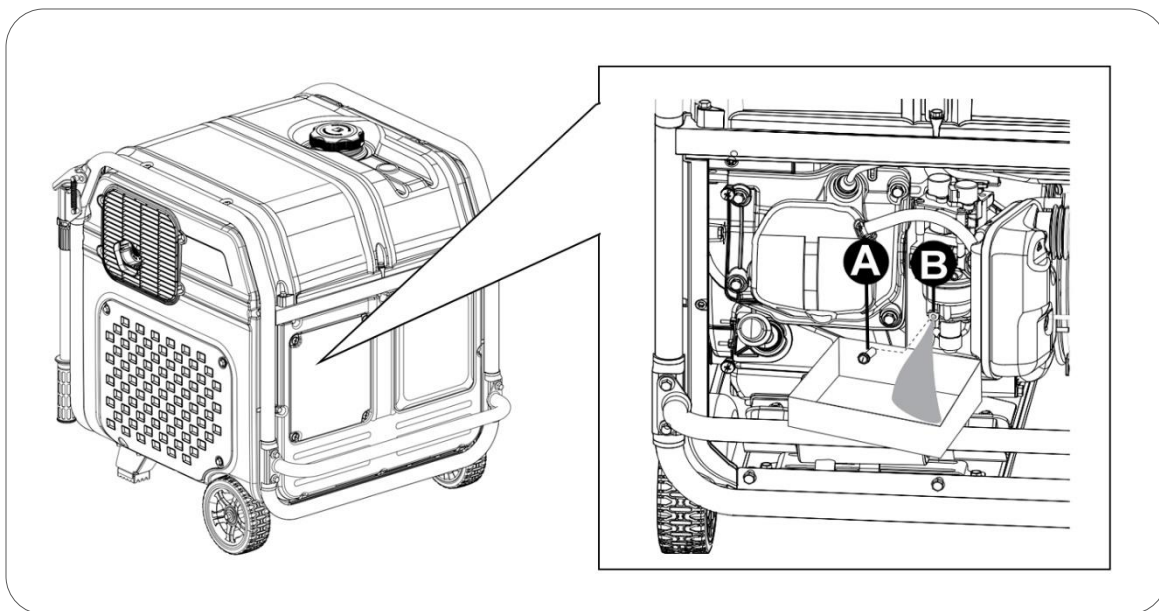
1. Con la ayuda de una bomba de succión manual extraiga la gasolina del depósito de combustible y almacénela en un contenedor adecuado.

NOTA: no use botellas de plástico normales, algunos plásticos se descomponen parcialmente en contacto con la gasolina y la contaminan, esta gasolina contaminada puede dañar un motor si es reutilizada.

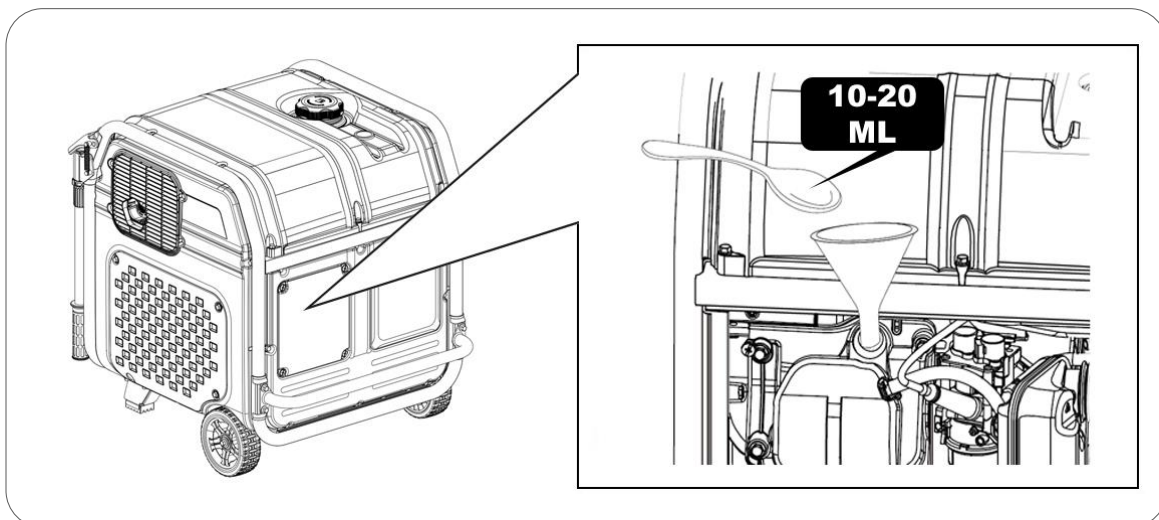
PELIGRO: La gasolina es explosiva e inflamable. Nunca fume o genere cualquier tipo de llama o chispa mientras este manipulando gasolina.



2. Coloque un recipiente adecuado bajo el orificio de drenaje para recoger la gasolina drenada.
3. Con un destornillador afloje el tornillo de drenaje del carburador (A), comenzará a salir la gasolina por el orificio de drenaje (B) del carburador. Una vez drenada toda la gasolina vuelva a apretar el tornillo de drenaje.



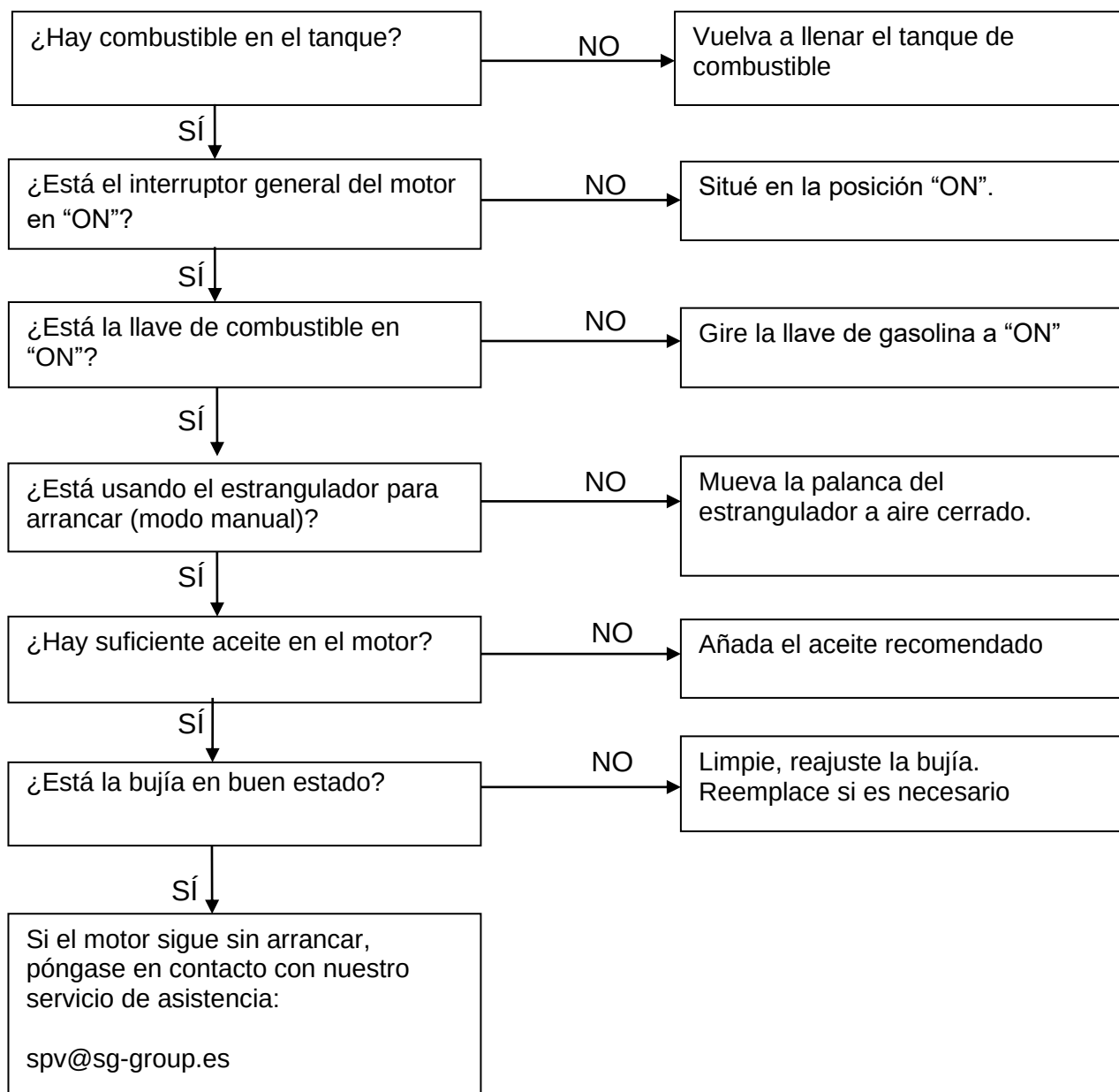
4. Retire la bujía (ver capítulo 9.3) y vierta una cucharadita de aceite de motor limpio (10 ~ 20 ml) en el cilindro. Tire de la maneta de arranque suavemente, esto hará girar el motor y distribuirá el aceite. Posteriormente vuelva a instalar la bujía.



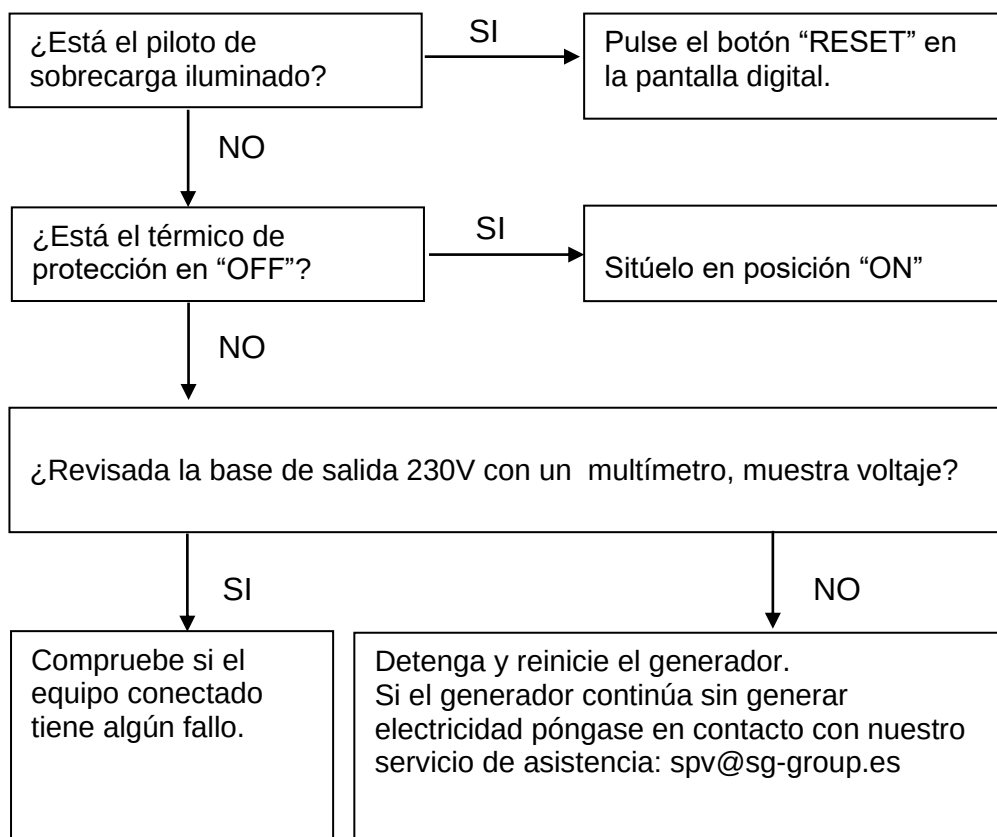
5. Tire de la cuerda de arranque lentamente hasta sentir resistencia. En este punto, el pistón está subiendo en su carrera de compresión y las válvulas de admisión y escape están cerradas. Esta posición, ayuda a proteger el motor contra la corrosión interna.

11 Solución de problemas:

- Si el motor no se puede arrancar:



- Los equipos 230V conectados no funcionan:



12 Información técnica:

MODELO	CRETA SILENT RC
Sistema de estabilización de Voltaje —Voltaje—Frecuencia	Inverter 230V 50Hz THD <3%
AC 230V Máxima (S25min)	7500W
AC 230V Nominal (COP)	7200W
AC 400V Máxima (S 25min)	-
AC 400V Nominal (COP)	-
Tipo por su número de fases	Monofasico
Factor de potencia	1
Modelo motor	SGB PRO 460
Cilindrada	459CC
Tipo de motor	Gasolina, 4 tiempos OHV refrigerado por aire
Nivel de presión acústica media 7mts LpA (Ralentí-nominal)	61.5dB(A) – 75.5dB(A)
Nivel de potencia acústica garantizada LwA	96dB(A)
Tipo de arranque	Manual – Electrico – Remoto
Capacidad tanque combustible	23L
Consumo hora 25% 50% 75% carga (aproximado)	1.7/LH-2.6L/H-3.6L/H
Autonomía al 25% 50% 75% carga (aproximada)	14H —9H — 7H
Capacidad y grado de aceite	1.1L — SAE10W40
Nivel de aislamiento	F
Clase según calidad aislamiento	A
Clase según rendimiento	G2
Estándar	ISO 8528-13:2016
Kit de transporte	Manillar con ruedas de 8"
Dimensiones	667 x 677 x 630mm
Peso	88Kg

MODELO	CRETA SILENT ATS
Sistema de estabilización de Voltaje —Voltaje—Frecuencia	Inverter 230V 50Hz THD <3%
AC 230V Máxima (S25min)	7500W
AC 230V Nominal (COP)	7200W
AC 400V Máxima (S 25min)	-
AC 400V Nominal (COP)	-
Tipo por su número de fases	Monofasico
Factor de potencia	1
Modelo motor	SGBPRO 460
Cilindrada	459CC
Tipo de motor	Gasolina, 4 tiempos OHV refrigerado por aire
Nivel de presión acústica media 7mts LpA (Ralentí-nominal)	61.5dB(A) – 75.5dB(A)
Nivel de potencia acústica garantizada LwA	96dB(A)
Tipo de arranque	Manual – Electrico – fallo de red (requiere cuadro ATS)
Capacidad tanque combustible	23L
Consumo hora 25% 50% 75% carga (aproximado)	1.7/LH-2.6L/H-3.6L/H
Autonomía al 25% 50% 75% carga (aproximada)	14H —9H — 7H
Capacidad y grado de aceite	1.1L — SAE10W40
Nivel de aislamiento	F
Clase según calidad aislamiento	A
Clase según rendimiento	G2
Estándar	ISO 8528-13:2016
Kit de transporte	Manillar con ruedas de 8"
Dimensiones	716 x 606 x 707mm
Peso	88kg

MODELO	CRETA SILENT SOL
Sistema de estabilización de Voltaje —Voltaje—Frecuencia	Inverter 230V 50Hz THD <3%
AC 230V Máxima (S25min)	7500W
AC 230V Nominal (COP)	7200W
AC 400V Máxima (S 25min)	-
AC 400V Nominal (COP)	-
Tipo por su número de fases	Monofasico
Factor de potencia	1
Modelo motor	SGBPRO 460
Cilindrada	459CC
Tipo de motor	Gasolina, 4 tiempos OHV refrigerado por aire
Nivel de presión acústica media 7mts LpA (Ralentí-nominal)	61.5dB(A) – 75.5dB(A)
Nivel de potencia acústica garantizada LwA	96dB(A)
Tipo de arranque	Manual – Electrico – Automatico por contacto NA
Capacidad tanque combustible	23L
Consumo hora 25% 50% 75% carga (aproximado)	1.7/LH-2.6L/H-3.6L/H
Autonomía al 25% 50% 75% carga (aproximada)	14H —9H — 7H
Capacidad y grado de aceite	1.1L — SAE10W40
Nivel de aislamiento	F
Clase según calidad aislamiento	A
Clase según rendimiento	G2
Estándar	ISO 8528-13:2016
Kit de transporte	Manillar con ruedas de 8"
Dimensiones	667 x 677 x 630mm
Peso	88kg

Mediciones de los niveles de ruido:

- ✓ El nivel sonoro a 7mts es la media aritmética de nivel de sonido (lpA) obtenido en cuatro direcciones ya 7 metros de distancia del generador.

 **NOTA:** El nivel de ruido puede variar notablemente en diferentes entornos.

Norma armonizada usada:

- ✓ ISO8528-13:2016: Grupos electrógenos accionados por motor de combustión

Directivas CE aplicables:

2006/42/EC:	Directiva de maquinaria
EU/2016/1628:	Emisiones de máquinas movidas por motor
2014/30/EU:	Compatibilidad electromagnética
2014/35/EU:	Directiva bajo voltaje
2000/14/EC (Enmienda 2005/88/EC):	Directiva de emisiones sonoras
2011/65/EU:	Directiva RoHS
(EC) no-1907/2006:	Regulación REACH

13 Información de la garantía:

Su máquina dispone de la siguiente garantía:

- ✓ 2 años para máquinas facturadas a consumidores (particulares).
- ✓ 1 año para máquinas facturadas a empresas, sociedades, cooperativas, autónomos y cualquier otro carácter legal diferente al de consumidor particular.

El periodo de garantía se rige únicamente por la factura y el carácter legal del facturado, no se tomará en ningún caso como referencia el destino o uso que se esté dando al producto.

La garantía cubre cualquier defecto que pueda tener la máquina durante periodo de garantía, siempre que el mantenimiento y cuidados de la máquina hayan sido adecuados. La garantía cubrirá todos los repuestos necesarios, así como la mano de obra.

La garantía no cubre ningún consumible (filtros, pilas, baterías, bujías), ni operaciones de mantenimiento preventivo. Tampoco el desgaste lógico que sufran las piezas por fatiga.

Original Instructions

THANK YOU for purchasing a gasoline generator of **GENERGY**.

- Copyright of this manual belongs to our company, Stock Garden Group.
- Reproduction, transference and distribution of any content of the manual is forbidden without written authorization from the Stock Garden Group.
- “GENERGY” and “”, respectively, are registered trademark and logo of GENERGY products, property of Stock Garden Group.
- The Stock Garden Group reserves the right of changing its products with the GENERGY brand, as well as its manuals, without previous consent.
- This manual must be used as part of the generator. If you resell the generator, the manual must be delivered with the generator.
- This manual explains the correct way of running of the generator. Please, read it carefully before using the generator. A correct and safe running will ensure your safety and extend the life cycle of the generator.
- Continuously, Stock Garden Group is innovating in the development of its GENERGY products through its design and quality. Despite this being the most updated version of the manual, there is the possibility of detection of slight differences between its contents and the products.
- Contact your GENERGY distributor in case of any questions or doubts.

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1 Safety information:

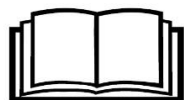
The safety is very important. Throughout the manual you will find important safety messages. Read, understand and comply with these messages to ensure that the running of the generator is completely safe.

We divide safety messages in 4 different types, according to the gravity of their consequences (if they are not fulfilled):

 DANGER	An imminently dangerous situation that will cause serious or fatal injuries , if it is not avoid.
 WARNING	A potentially dangerous situation that can cause serious or fatal injuries , if it is not avoid.
 CAUTION	A potentially dangerous situation that can cause mild or moderate injuries , if it is not avoid.
 NOTE	A situation that can cause material damage , if it is not avoid.

1.1 Summary of the most important hazards during the running

Before using the generator, you must read and understand the entire manual!



Using the generator without being properly informed of its operation and safety standards will result in hazards to the user and the plant.
Do not allow anyone to use the generator without being qualified to do it.

Gasoline is explosive and flammable!



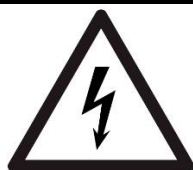
Do not refuel while the generator is running.
Do not refuel if you are smoking or if there is a flame near.
Clean gasoline spillages.
Before refuelling, first let the generator cool down.
Always use containers approved for gasoline.
Do not use the generator in potentially explosive environments, gas installations or similar. Always consult the safety department.

Engine emissions contain poisonous carbon monoxide gas!



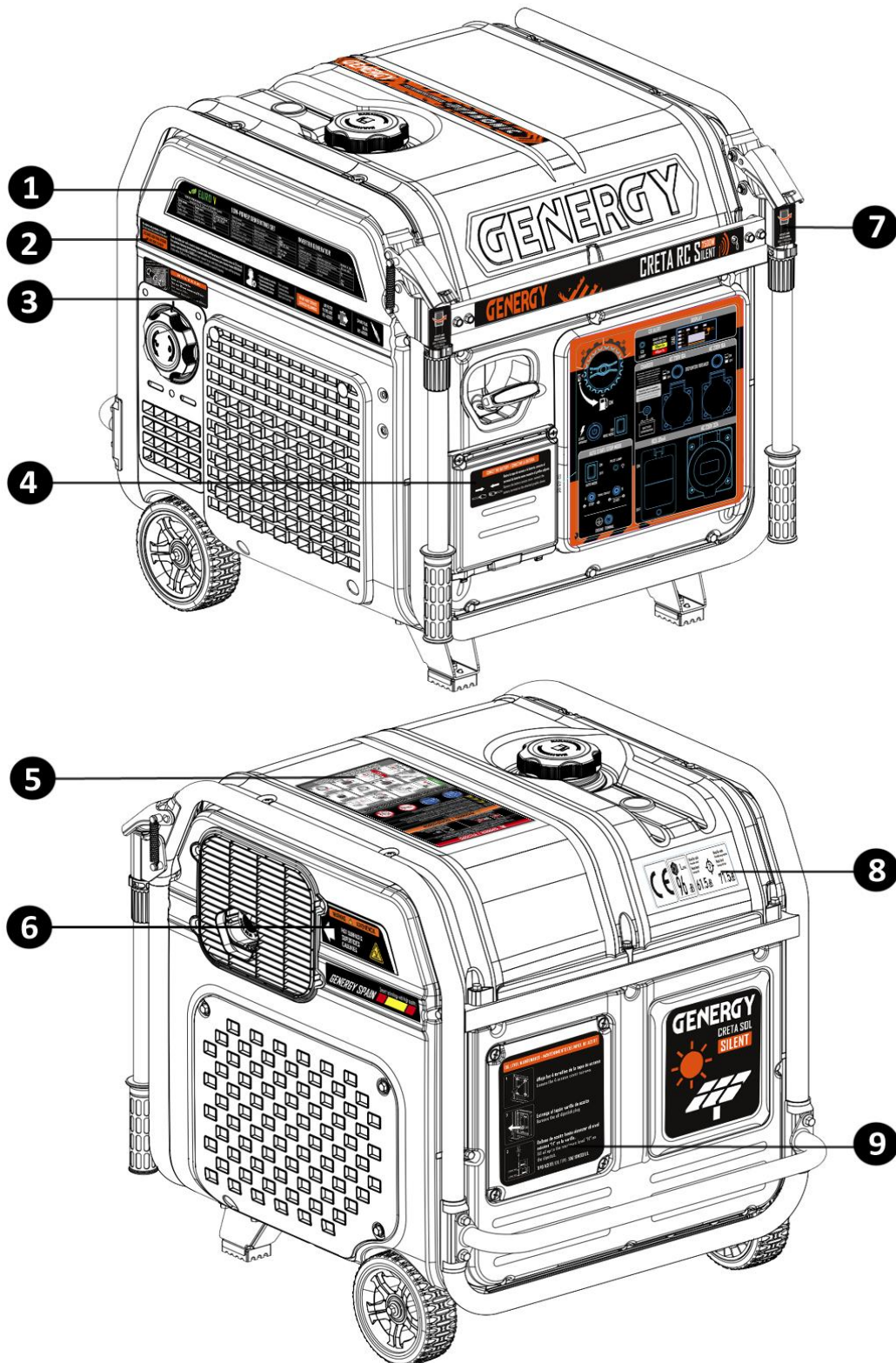
Never use the generator inside your house, garage, tunnel, warehouse, cellar or any other place without ventilation.
Do not use the generator near windows or doors where emitted gases may enter inside.
The exhaust pipe expels poisonous carbon monoxide gas from the generator. This gas is very dangerous and cannot be seen or smelled.

Attention to electrical hazards!



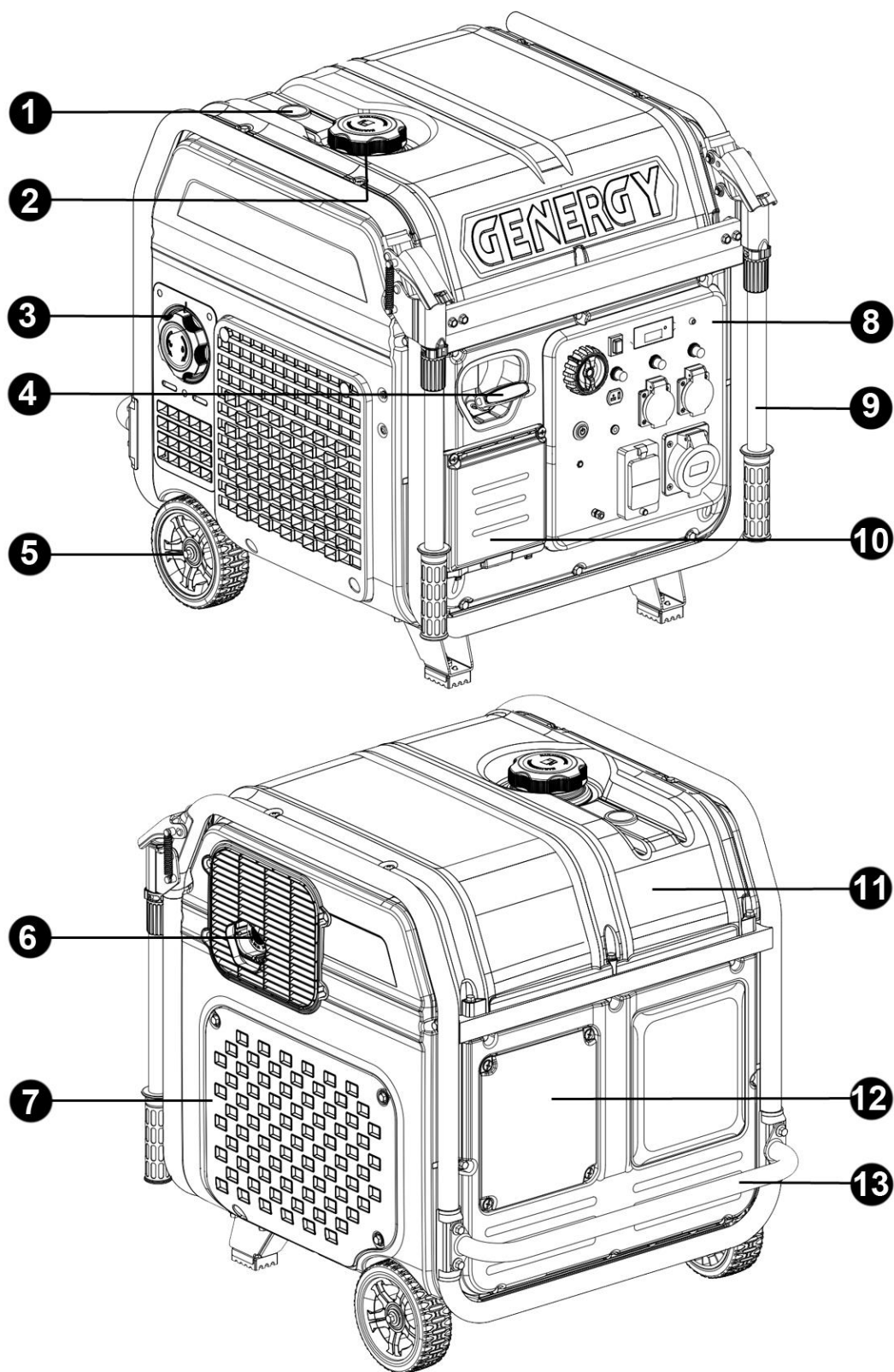
Do not operate the generator with wet hands.
Do not expose the generator to rain, humidity or snow.
Always check the condition of the wires and electrical connections. Also, confirm the good condition of the equipment to connect.
Grounding the generator.

2 Location of safety and usage labels:



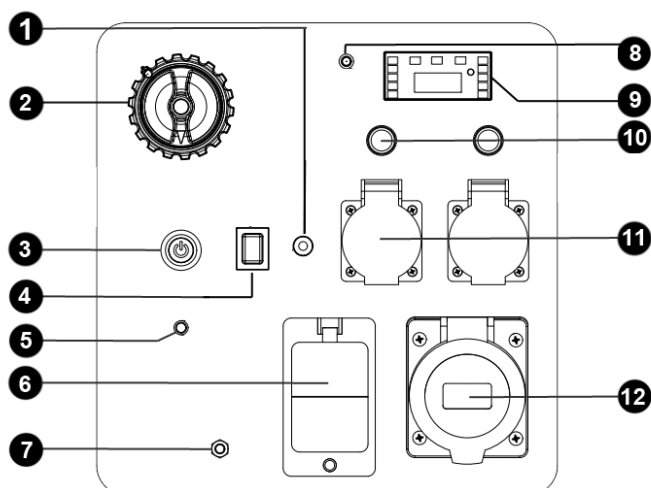
1-Specifications	2-After sales	3-Air filter info
4-Battery connection info	5-Safety and starting	6-Temperature danger warning
7-Telescopic handlebar info	10-CE marking and noise level	9-Oil alarm info

3 Identification of components:

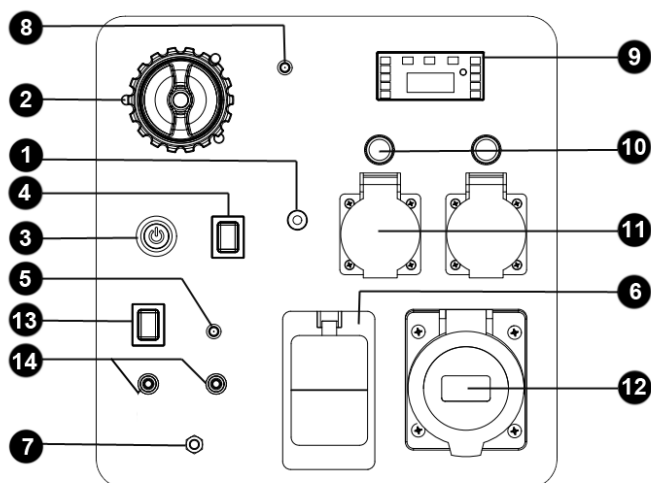


1-Fuel level display	2-Fuel tank cap	3-Air filter	4-Manual start
5-6" wheelset	6-Exhaust pipe	7-Engine access	8-Control panel
9- Telescopic handlebar	10-Battery access	11-Fuel tank	
12-Engine access for oil filling	13-Lifting handle for two people		

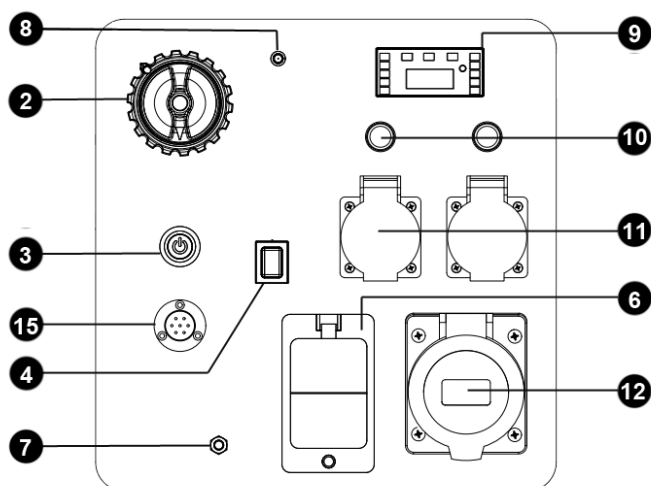
3.1 Control panel



CRETA SILENT RC



CRETA SILENT SOL



CRETA SILENT ATS

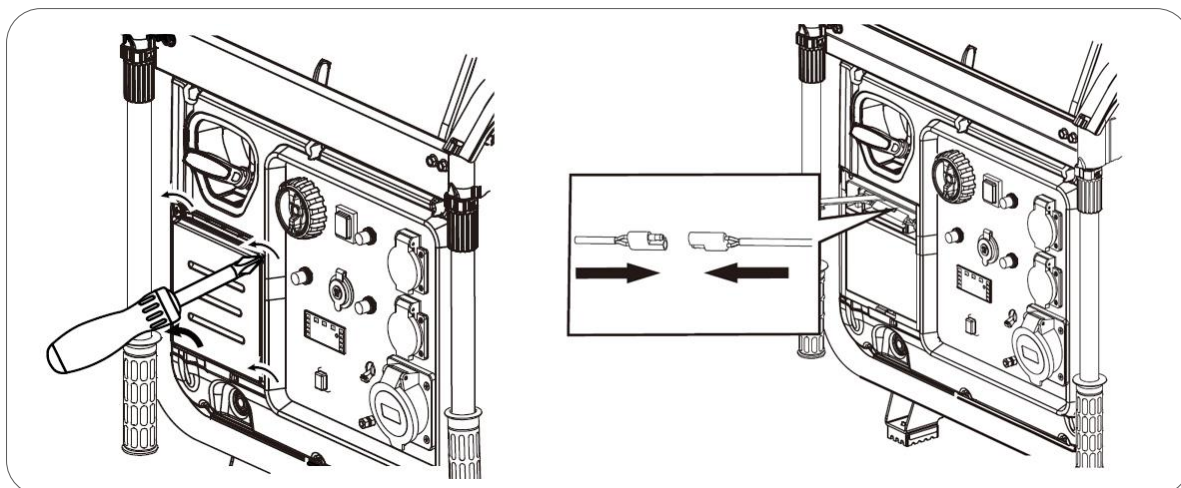
1-Battery charging port	2-Choke-gasoline valve (dial selector)
3-Start button	4-ECO mode button
5-Auto mode pilot	6-30mA differential circuit breaker
7-Ground connection	8-Carbon monoxide alarm
9-Digital screen	10-16A sockets circuit breaker
11-16A socket	12-32A sockets
13-Automatic mode switch	14-Dry contact NO start
15- Input port ATS mains failure box	

4 Checks before use:

4.1 Battery connections

1. Before connecting the battery, check if the dial selector on the control panel is in the "OFF" position.
2. Open the battery access door and connect the quick connectors as shown in the image below.

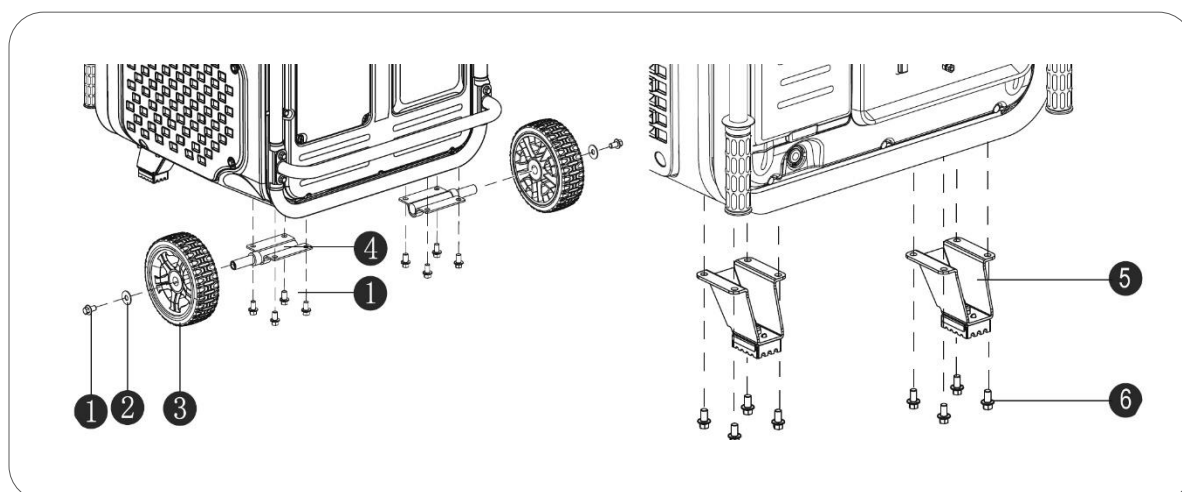
 **NOTE:** Make sure that the joint between them is well done.



4.2 Assembling of wheels and levelling feet.

Fix the wheel axles (4) with the screws (1) included. Next, insert the wheel (3) on the axle, and fix it with the washer (2) and the screw (1).

Screw on the rubber feet (5) with the included screws (6).

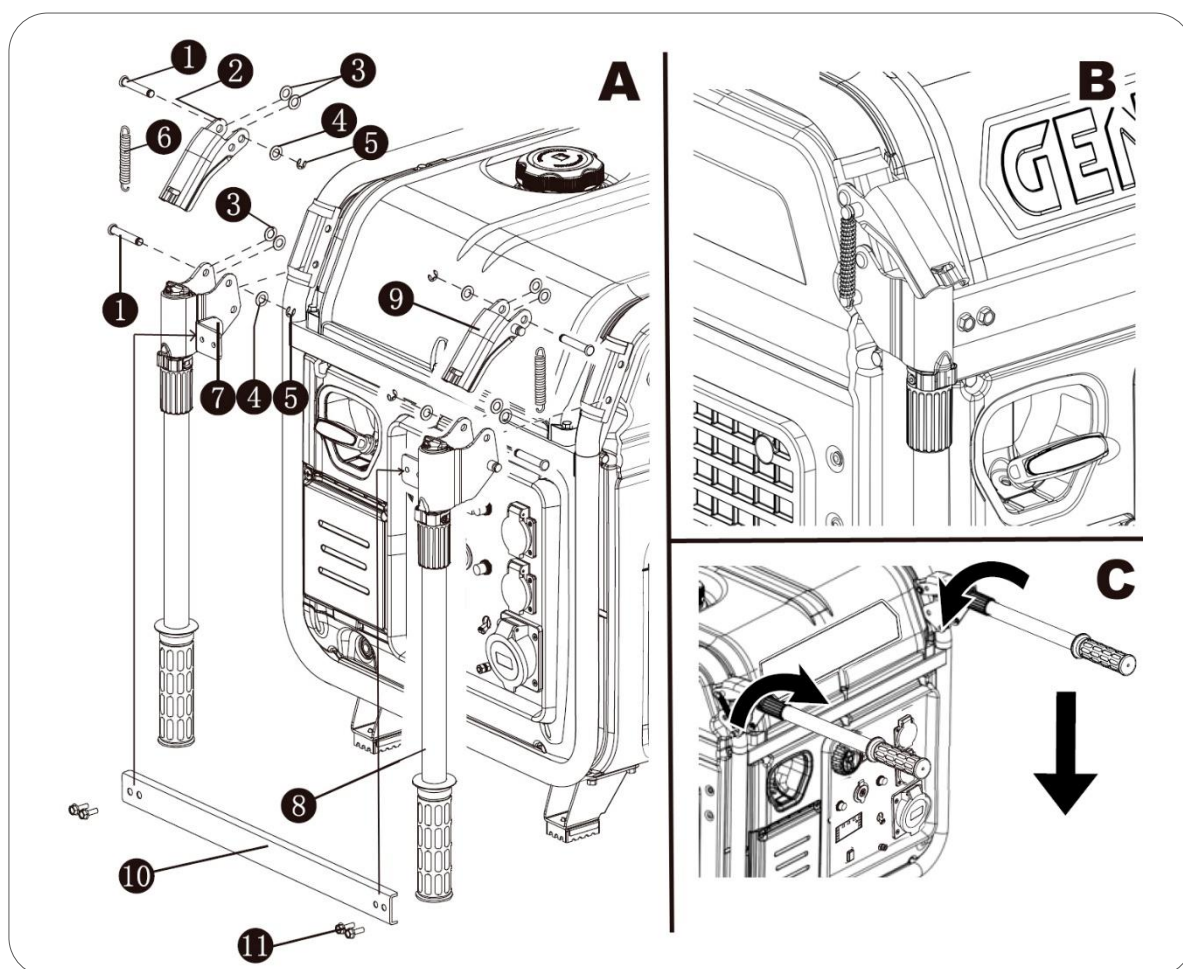


 **NOTE:** Do not use the generator without wheels and levelling feet. They are designed to absorb vibrations of the equipment during the running, thus avoiding damage due to tensions and jolts.

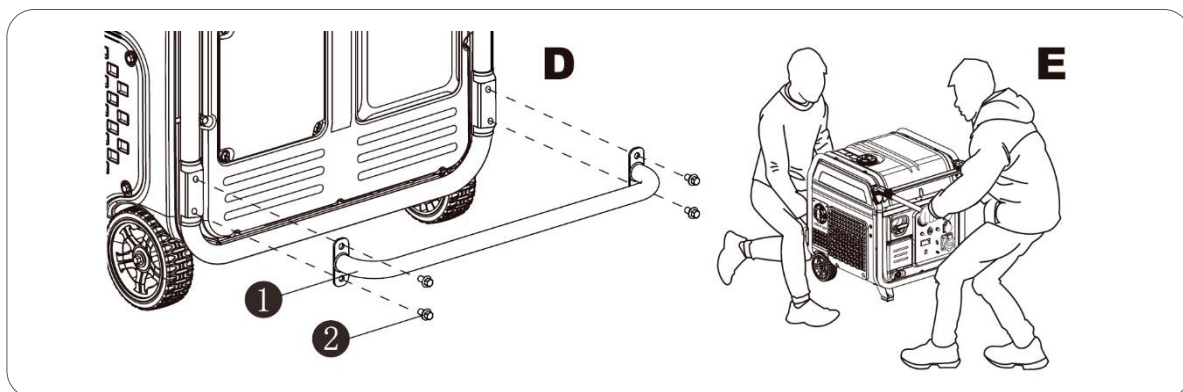
4.3 Assembly of transport handles

First fix the handlebars (7-8) with fasteners as described in the image below. Now fix the upper blockers (9) with their fasteners and spring (6). Finally, install the front plate (10) in the holes that remain inside the handlebars. In image **B** you can see the result of the assembled elements.

NOTE: The handlebars go up freely and will be locked at the top. To unlock and lower them, raise them slightly first and then rotate the handlebars inwards as in image **C**.



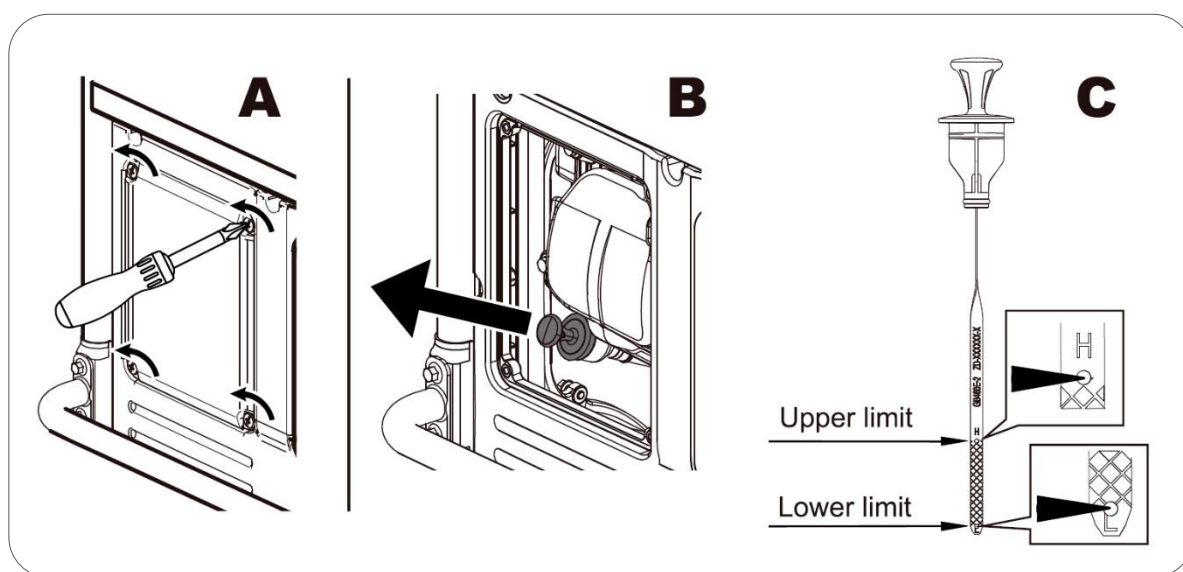
1. Install the rear handlebar (1) according to image B. This handlebar will allow the movement of the equipment between two people.



4.4 Oil filling and checking

NOTE: The generator is delivered without oil. **Do not attempt to start the generator without adding oil in the engine first!**

1. The generator has to be on a perfectly flat surface and levelled, to avoid an error in the oil level reading.
2. Using a screwdriver, remove the 4 screws and open the access window according to image A.
3. Remove the cap with oil level as shown in the image B below.
4. Put the oil into the engine until reach the upper limit of the level.



The estimated amount of oil to reach a correct level is 1.1L.

Preferably use a synthetic engine oil SAE5W40 with API "SJ" (USA) or ACEA "A3" (EUROPE) or more updated (see container specifications). This oil will give excellent results in variable climates such as continental Europe, both in winter and summer.

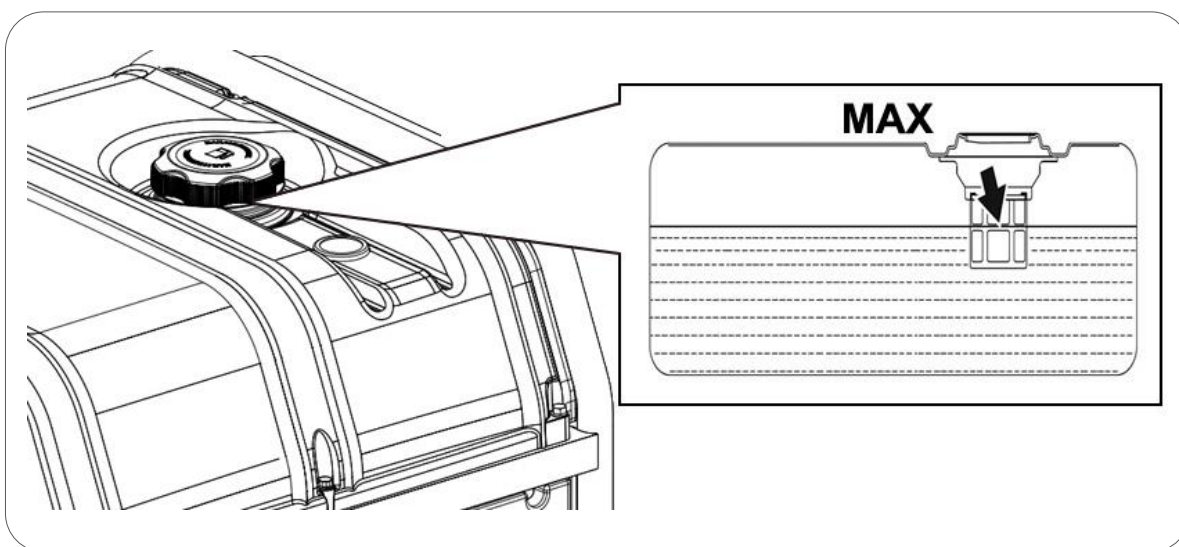
NOTE: The engine may consume a bit of oil during its running. Therefore, before each running, always check oil level and refill if necessary.

NOTE: Never use oils that are old, dirty, in poor condition or without specifications (grade and quality). Do not mix different types of oils.

4.5 Refuelling and checking

-  **NOTE:** Use only unleaded gasoline (86 Octane or higher).
-  **NOTE:** Never use expired gasoline, contaminated or mixed with oil/gasoline.
-  **NOTE:** Avoid dirt or water into the fuel tank.
-  **NOTE:** Do not use a mixture of gasoline with ethanol or methanol, because the engine can be damaged seriously.

Remove the fuel cap, turning counter clockwise. Refuel the gasoline without reaching the maximum level (MAX), according to the image below. The approximated tank capacity is 23 liters.



 **DANGER:** Gasoline is extremely explosive and flammable. During the refuelling is completely forbidden to smoke, to do fire or other any kind of flame. The same procedures for the fuel storage place.

 **WARNING:** Keep the fuel out of the reach of children.

 **WARNING:** Avoid fuel spillages when refuelling (before restarting the engine, clean possible spillages).

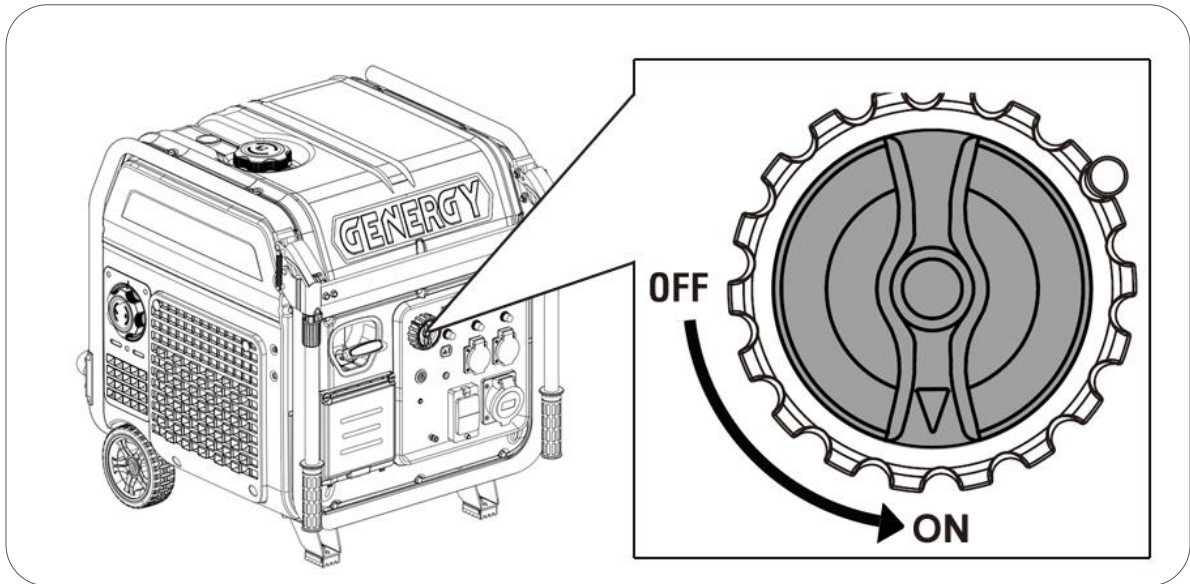
 **WARNING:** Do not overfill the fuel tank (do not exceed the maximum level). After refuelling, ensure that the fuel filler cap is properly fitted and closed.

 **CAUTION:** Avoid skin contact and do not inhale the fuel vapours.

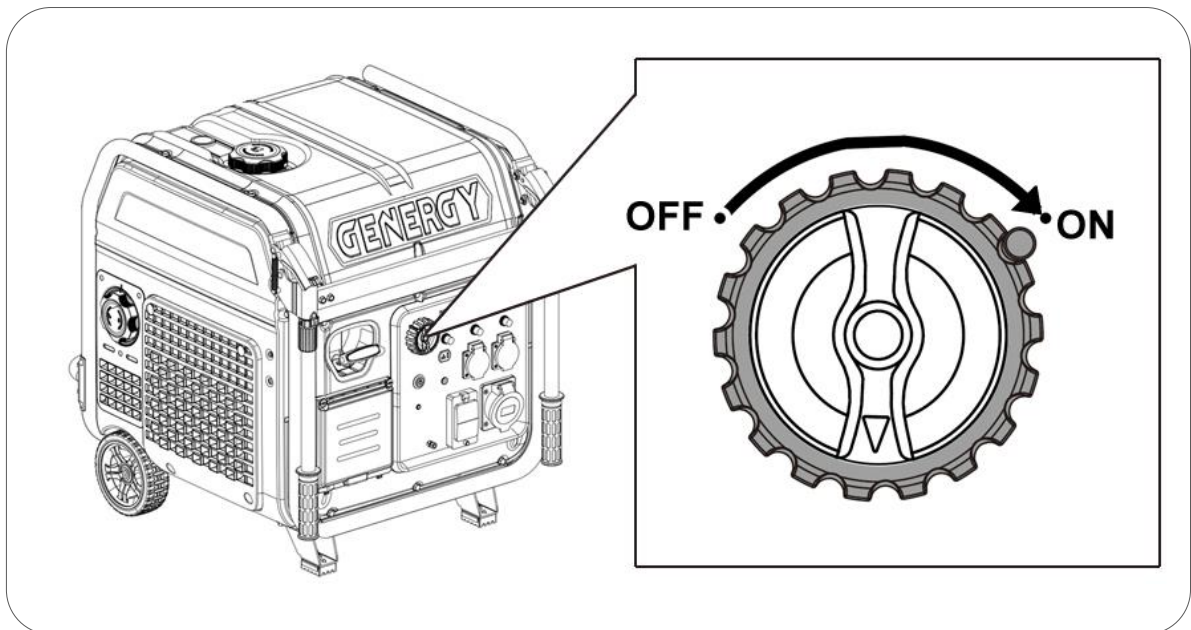
5 The engine starting:

5.1 The electrical starting

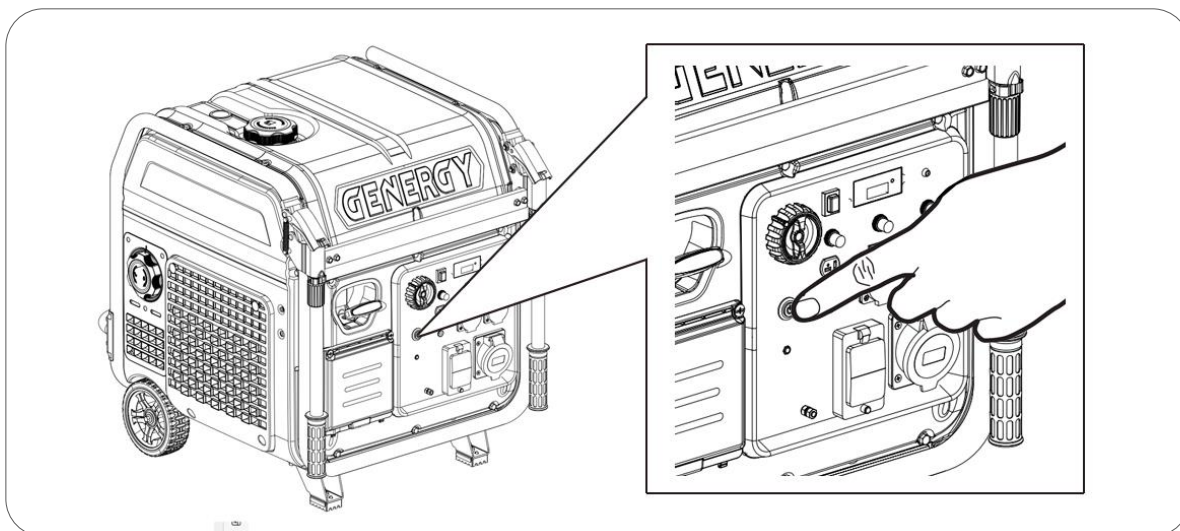
1. Disconnect all equipment from generator or ensure that its general switch is in the “OFF” position. The starting of the generator has to be done without equipment connected.
2. Identify the fuel valve (inner dial of the dial selector marked in grey color in the lower image). Turn it to the “ON” (open) position.



3. Turn the OFF/ON selector (external dial marked grey color in the image below) to the “ON” position).



4. Press the "START" button.



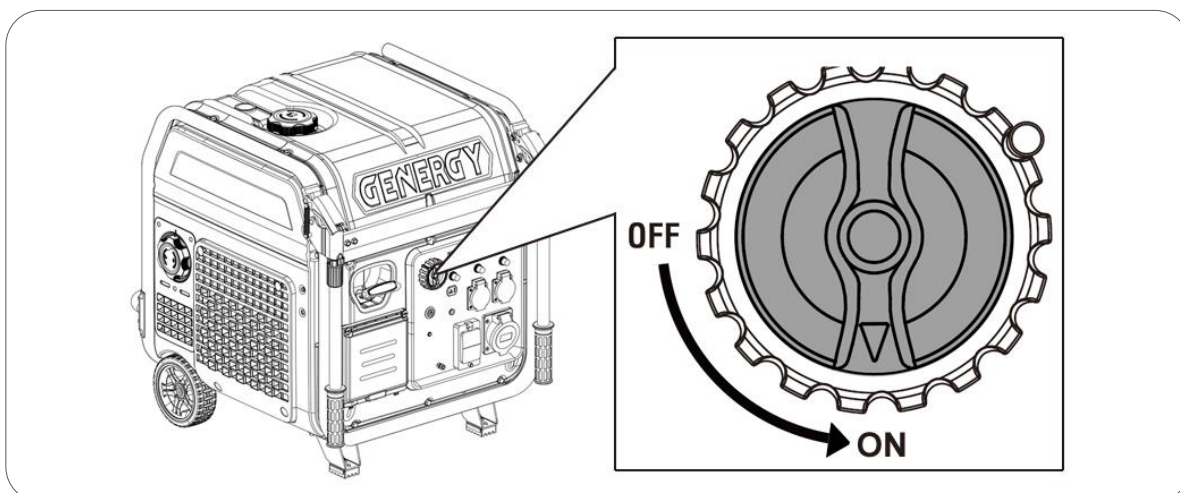
NOTE: On the first start attempt, if the generator fails, wait a few seconds and try again.

NOTE: At the first start of the machine, or if the machine has not been used for a long time, the battery may be weak to start.

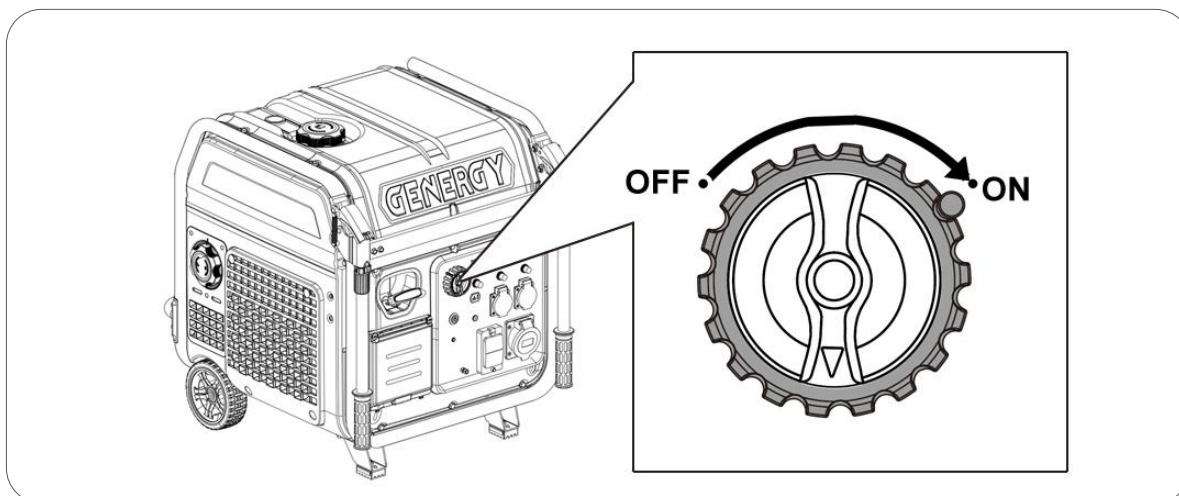
If you see that the battery charge is insufficient, review the chapter "Recharging the battery from the charging port" of this user manual.

5.2 The manual starting (only if there is no battery or it is low)

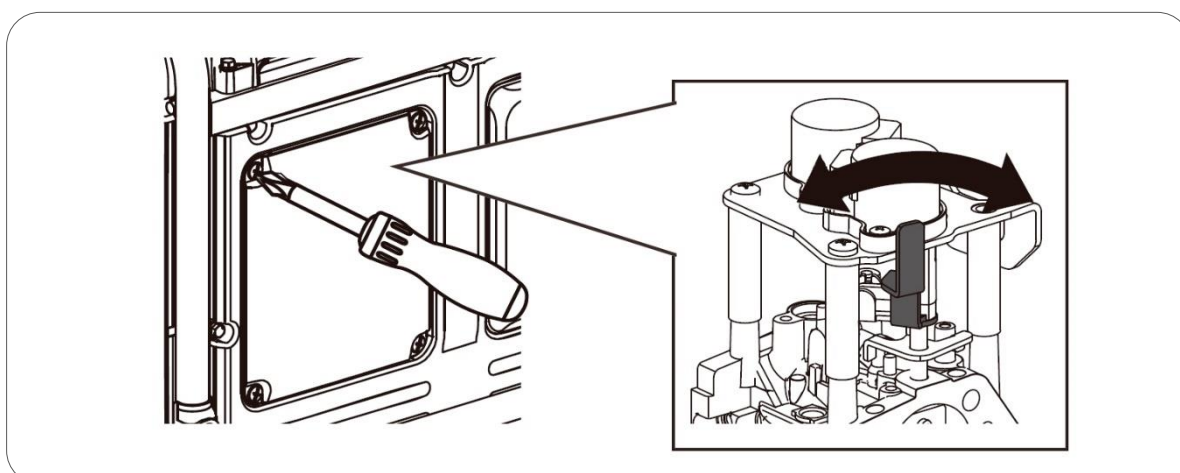
1. Disconnect all equipment from generator or ensure that its general switch is in the "OFF" position. The starting of the generator has to be done without equipment connected.
2. Identify the fuel valve (inner dial of the dial selector marked in grey color in the lower image). Turn it to the "ON" (open) position.



3. Turn the OFF/ON selector (external dial marked grey color in the image below) to the "ON" position.



4. Open the access cover in order to operate the manual choke (image below). Turn it to the right for a cold start.



5. Smoothly, grab the handle and pull the starter rope (recoil starter) until the final to calculate the maximum stroke of the rope (and not exceed it after when you pull energetically). After let the rope recoils and then pull the rope energetically to start the engine.
6. After the engine has started, turn the choke lever fully to the left.

 **NOTE:** If the rope recoils abruptly, the spring or the rope itself may be damaged. This is not covered by the warranty.

 **NOTE:** After pulling, do not release wilfully the handle to avoid hitting the machine. Control the handle tightly until it is fully recoiled.

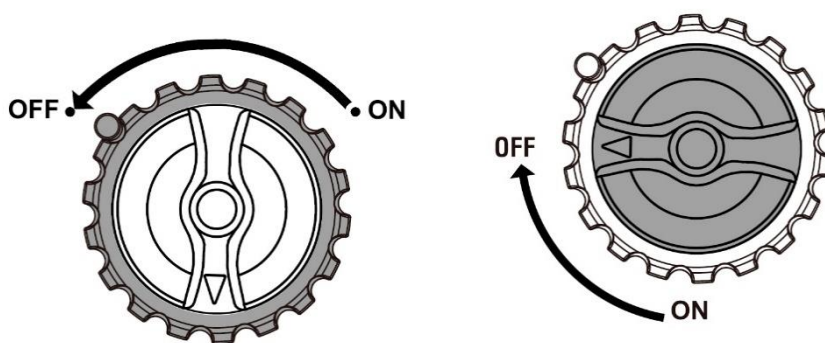
 **NOTE:** Never pull the starter rope while the generator is running.

NOTE: Don't leave the dial selector in choke position or other intermediate positions while the engine is running, otherwise, it could cause a poor combustion, abnormal operation and breakdowns.

NOTE: The auto choke will not work if the battery is very low or damaged. In this case you must close the choke manually and then pull the starter rope. The battery is recharged while the engine is running, you can also recharge it with the engine off from the external socket on the panel, see chapter "Recharging the battery from the charging port".

5.3 Stopping the generator

1. Disconnect electrical equipment connected to the generator.
2. Turn the multi-function selector (external dial marked in grey color) to the "OFF" position.
3. Turn the fuel valve (inner dial marked in grey color) to the "OFF" position.

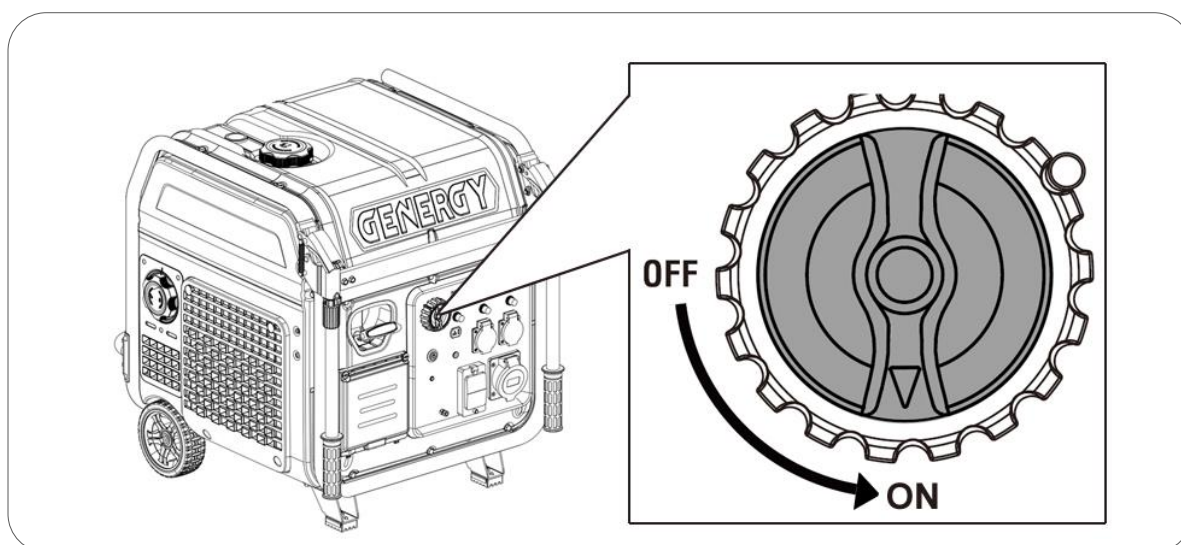


5.4 Remote control starting (CRETA SILENT RC)

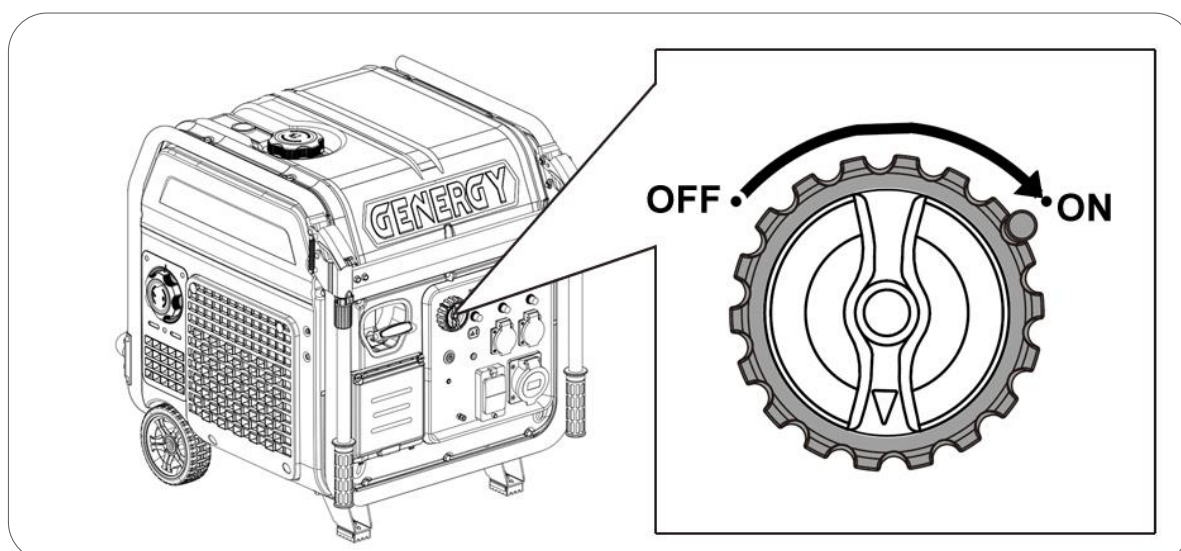
The CRETA SILENT RC model allows remote starting wirelessly up to a maximum distance of 50m by a remote control system.

NOTE: The remote control system is not included in the CRETA SILENT SOL or CRETA SILENT ATS models and cannot be installed as an optional.

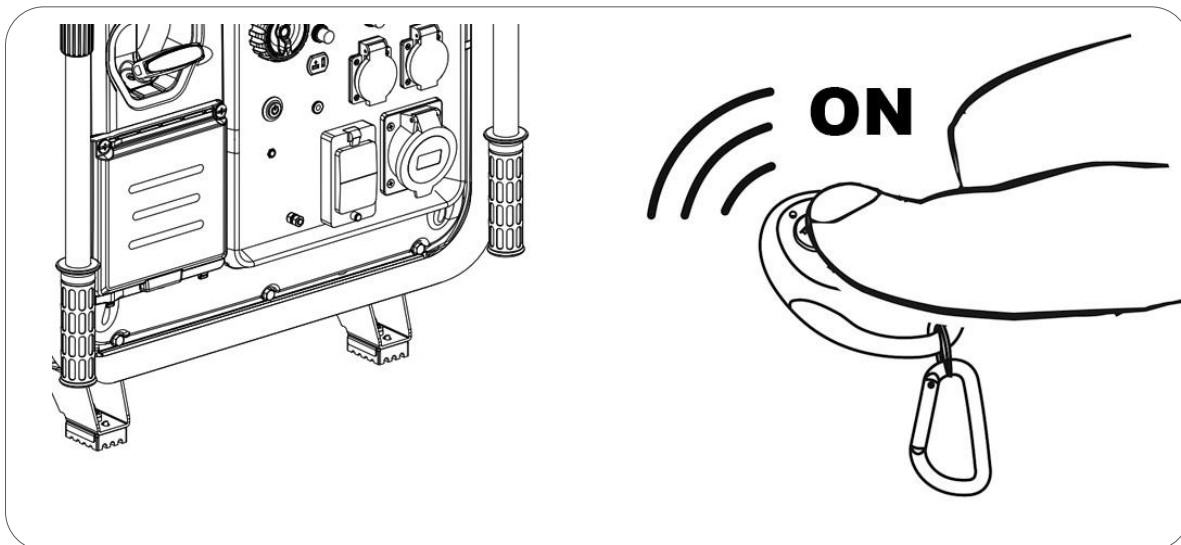
1. Turn the fuel valve to the "ON" position.



2. Turn the OFF/ON selector (external dial marked grey color in the image below) to the "ON" position.



3. On the remote control, press the “ON” button **for one second**. The generator will perform the starting process automatically.



NOTE: Do not keep pressed the “ON” button on the remote control. Just press for about a second.

On the first start attempt, if the generator fails, automatically it performs six new attempts. Just wait. If the generator does not start within the six preprogrammed attempts, you can press the “ON” button on the remote control again to do another sequence of starts.

This generator has an automatic choke, so no lever action is required to make easy the starting in a cold condition.

NOTE: The auto choke will not work if the battery is very low or damaged. In this case you must close the choke manually and then pull the starter rope. The battery recharges while the engine is running, you can also recharge it with the engine off from the external socket on the panel, see chapter "Recharging the battery from the charging port".

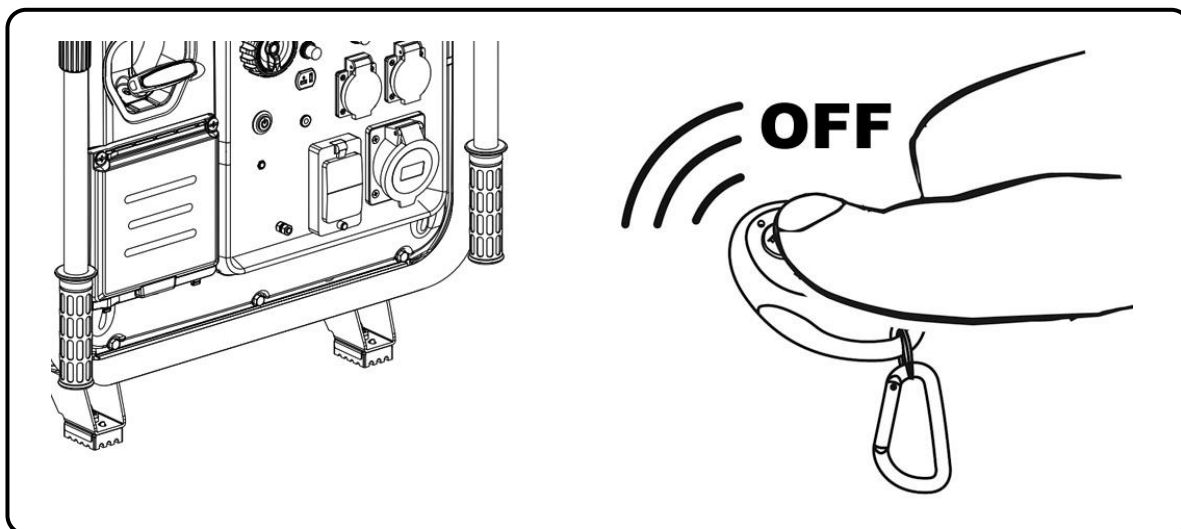
NOTE: If the generator remains off for more than 24 hours, the generator will automatically go into “SLEEP” mode. To reactivate the remote control you must press the START button on the generator. This function prevents battery discharge.

NOTE: If the remote control does not work or works abnormally, replace the battery.

OPD Function (Output power delayed). Up to 20 seconds after the starting, the generator does not generate electricity in the sockets. This ensures that the generator starts without supplying power to the connected equipment.

5.5 Remote control stopping

On the remote control, press the "OFF" button.



NOTE: If you will not use the generator in the next 12 hours, so close the fuel valve and turn the key to the "OFF" position. **This action avoids the battery discharge during periods of inactivity.**

5.6 Synchronize a new remote-control device

NOTE: To sync a second remote control — without cancelling an existing one — follow steps 1 to 5, but skip step 3. Note that only two remote controls can be synchronized at the same time.

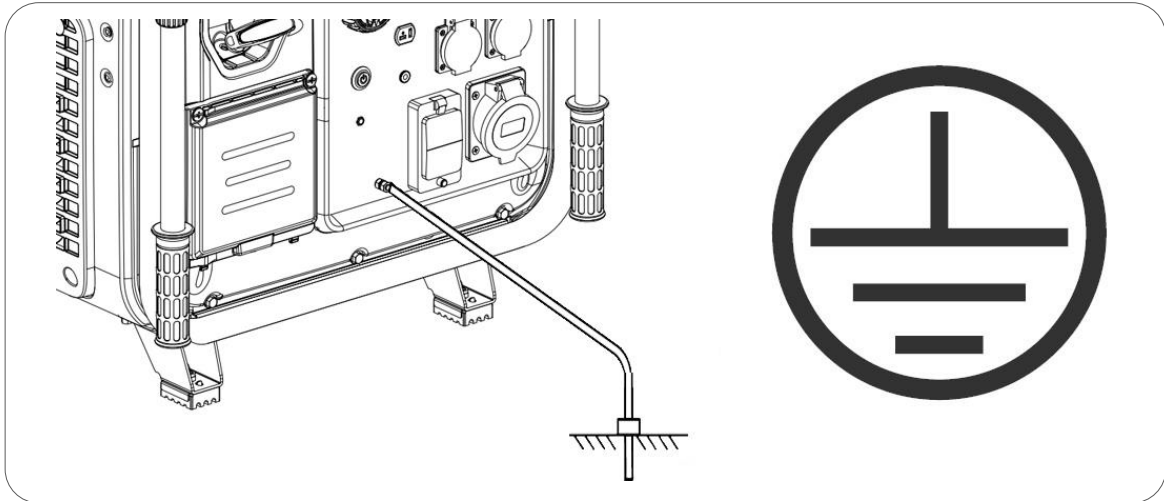
NOTE: To sync a new remote — cancelling the old one — follow steps 1 to 5, including step 3.

1. Turn the key to the "ON" position.
2. Press the "PILOT LAMP" button for more than 3 seconds until the blue light on.
3. Press the "STOP" button on the remote control for more than 1 second and the blue "PILOT LAMP" will flash.
4. Press the "START" button on the remote control for more than 1 second and the blue "PILOT LAMP" will flash.
5. Press the "PILOT LAMP" button and hold it until the light turn off, and with this the new remote control will be synchronized.

6 The generator usage and its protections:

To improve engine performance and to extend machine life, a 20 hour “break-in” period is recommended without forcing the generator, with loads not exceeding 60-70% of the maximum output of the equipment.

⚠ WARNING: Ensure the installation of the ground wire. If you have doubts, please, call your electrician.



⚠ WARNING: Never connect directly the voltage output of the generator to a building or a house (even when there is a circuit breaker for the main circuit). The return of the main circuit will shock with the generator output, which will do serious damages to the generator or even a fire.

⚠ WARNING: Do not connect the generator in parallel with other generators in order to add powers. The generators will be damaged and there will be a high risk of fire.

💬 NOTE: Do not connect an extension to the exhaust pipe.

💬 NOTE: When an extension cable is required, you have to ensure its good quality and proper section (ask to your electrician).

💬 NOTE: Equipment that has an electric motor (compressors, water pumps, saws, grinders, etc.) requires up to 3 times more power during the starting. For example, a 500W water pump needs 1500W to start. Therefore, always confirm the nominal powers (rated) of the equipment to be connected and ensure that they do not exceed the maximum power produced by the generator, according to our recommendation.

⚠ WARNING: before connecting to the generator, confirm if all equipment is in good working conditions.

If the equipment runs abnormally, slowly or spontaneously shuts down, stop the generator immediately and disconnect the equipment.

6.1 Sockets protection

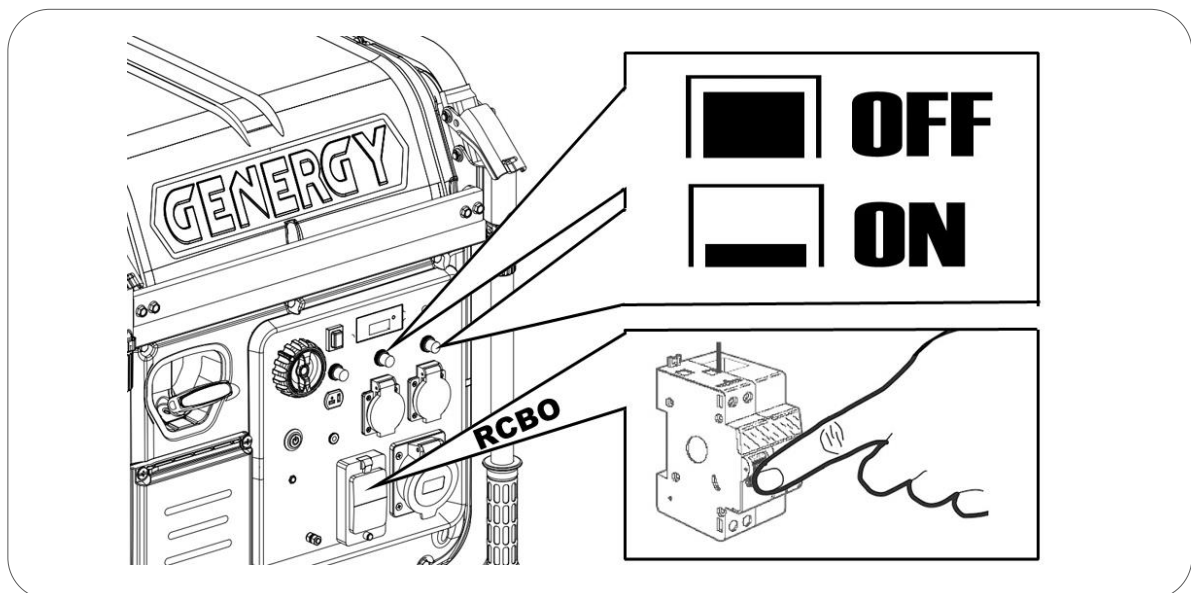
Your generator has thermal protectors (circuit breakers) that protect sockets from higher loads.

In case of exceeding its maximum capacity in one socket, the circuit breaker will cut the current to avoid an overheating or fire in the socket or in the connected plug.

- A 16A socket allows a maximum power supply of 3680W (230Vx16A).
- A 32A socket allows a maximum power supply of 7360W (230Vx32A).

In case of overload, first of all, disconnect the connected equipment.

Once the equipment has been disconnected, reset the overload protector by moving it to the "ON" position and thus restore the voltage output.



If the overload protector jumps when connecting the equipment, give up connecting it. The connected equipment may have a problem or it may exceed the maximum capacity of the socket or the generator itself.

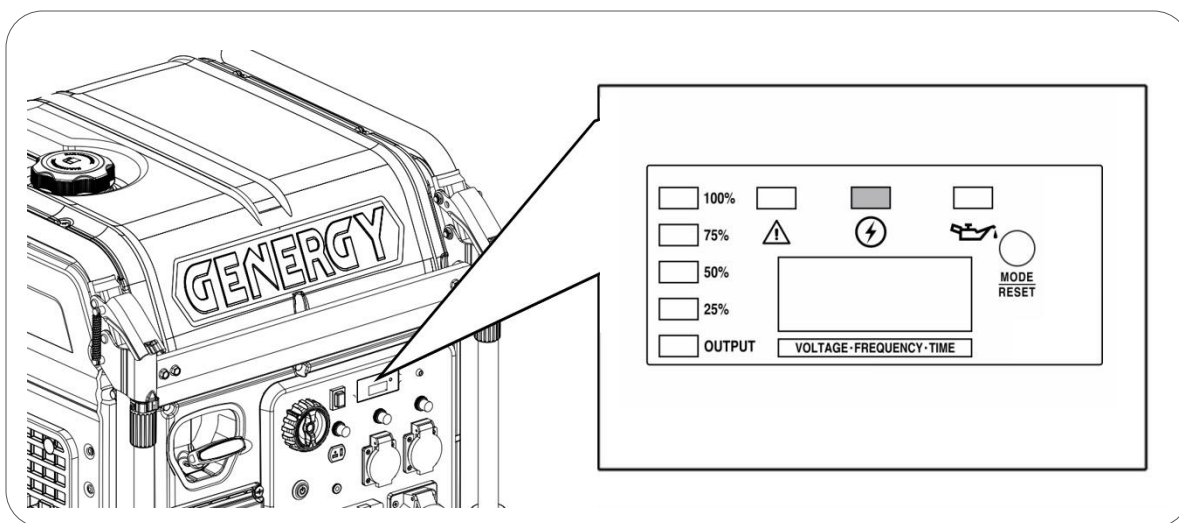
Remember that many equipment need an extra power consumption to start. Devices that has an electric motor (compressors, water pumps, saws, grinders or others) requires up to 3 times more power during the starting. For example, a 1000W water pump requires 3000W to start, so that we would need a generator not less than 3000W. In certain refrigerators these calculations can be even greater.

The equipment has a 30mA differential (RCBO) that protects against current leaks and also protects people from shocks. This device also protects against maximum overload supported by the equipment. In case of jump of the RCBO, check possible problems in the electrical circuit, and once solved, restore the output. The generator needs a correct independent ground connection for the RCBO to work correctly.

6.2 Digital control panel

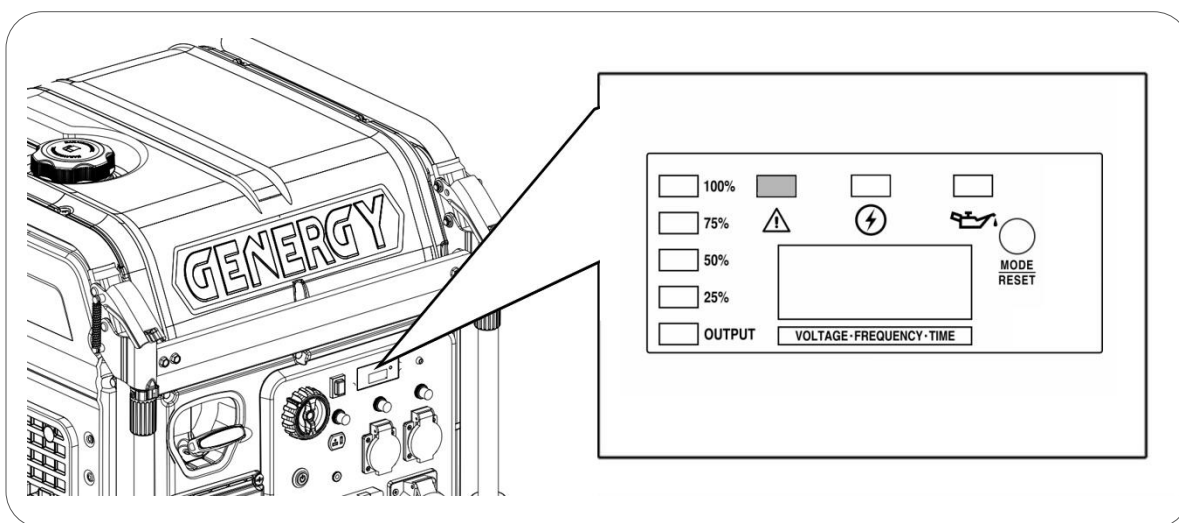
Central pilot: Correct running

After the generator starts, it turns on and it means that the running is normal.



Left pilot: Generator overload

If the generator is overloaded, the indicator turns on. In this case, the generator will keep running, but the power output will be cut off.



In case of overload, follow the steps below:

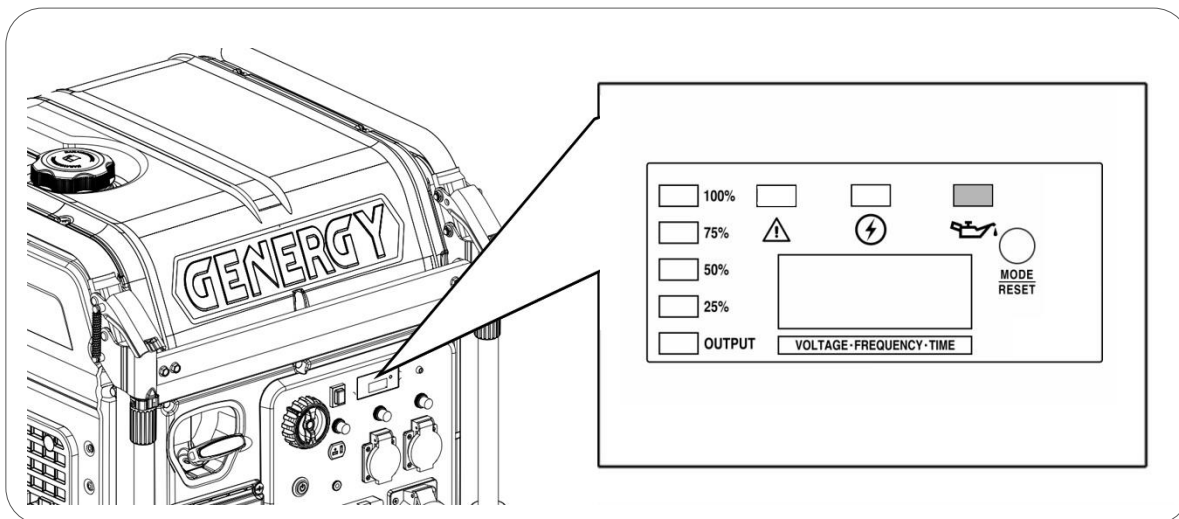
1. Disconnect the equipment from the generator.
2. Press the “RESET” button, according to the image above.
3. Connect other equipment which power consumption is less than the rated power performed by the generator.

NOTE: A dirty air filter reduces the maximum power of the equipment, activating the overload alarm even with lower power consumption than the nominal power performed by the generator.

Right pilot: Lack of oil

The lack of oil alarm system is designed to avoid damage to the engine caused by insufficient amount of oil.

With a low oil level, this indicator turns on and consequently, for security reasons, the engine turns off. The engine only starts again if the oil level is restored.

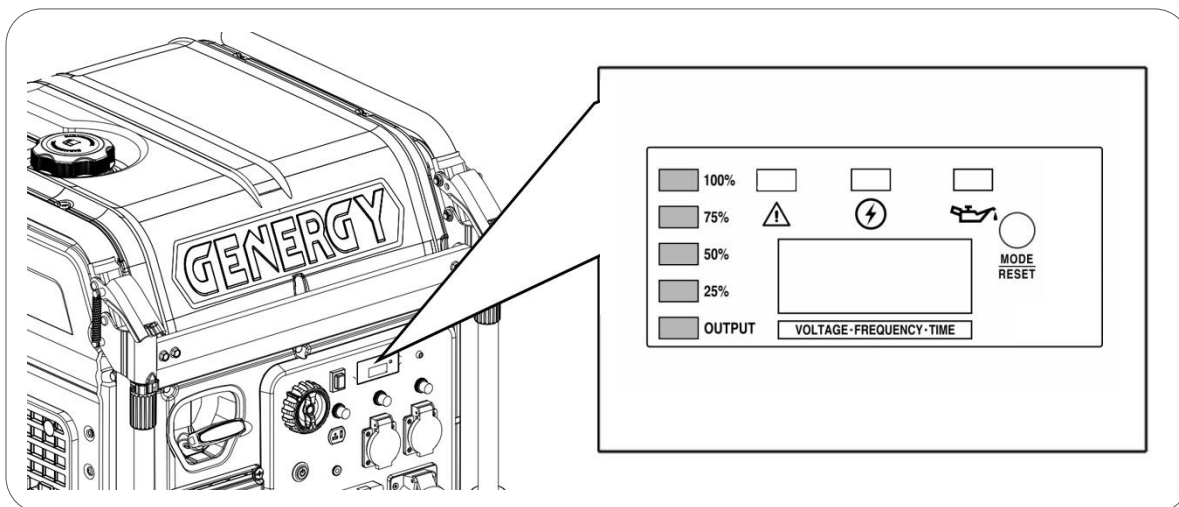


NOTE: Protection due to lack of oil must be considered an extra security. Checking the oil level before each use is the full responsibility of the user, as indicated and recommended in this manual. The probability of failure of the alarm system is very low, but if the checking also fails, the damage on the engine will be very high. Thus, unique and exclusively, the user is responsible for any damage due to lack of oil. This kind of damage is not covered by the warranty.

NOTE: This alarm system only works when the level of oil is not enough, not protecting in case of inadequate oil or oil in poor condition.

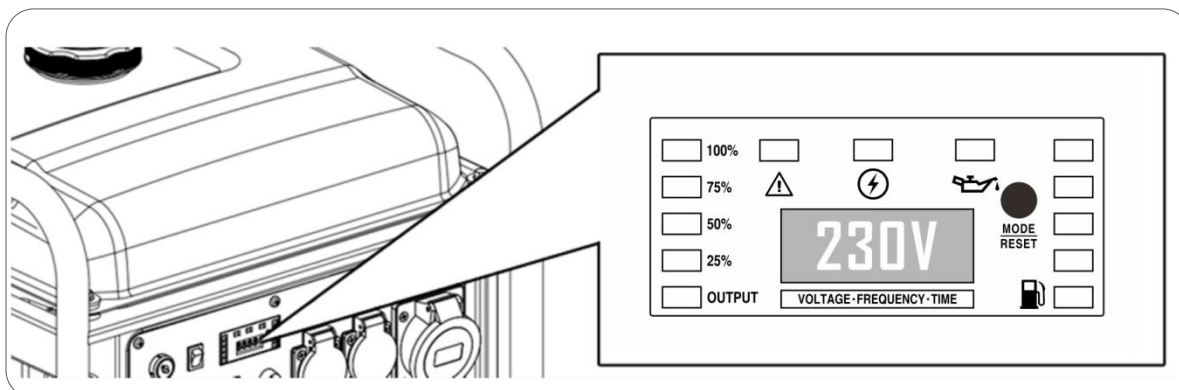
Left sidebar: Generator power output indicator

Show by approximation, the level of power consumption against to the total capacity of the generator. Just an indicative function.



Central display: Parameters indicator.

During the running, the central display shows Voltage, Frequency and Hours of work. You have only to press the “RESET” button to see each parameter.



6.3 Carburettor modification for high altitude running

At high altitude, the normal mixture of air and fuel in the carburettor will be too rich. The performance is reduced and the fuel consumption is increased. A very rich mixture also gets dirty the spark plug and makes it difficult to start the engine. If a generator always operates at an altitude above 1500 meters, contact a Genenergy Authorized Service to modify the carburettor (this service is not covered by the warranty, so it will be paid by the client).

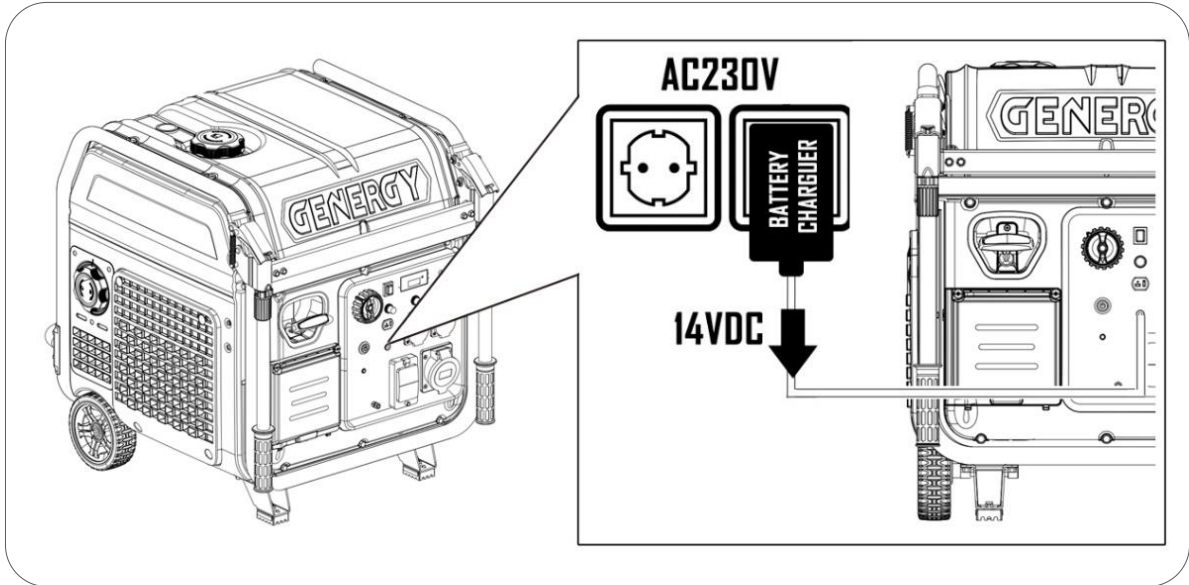
Remember that even with a modification in the carburettor, the power will decrease at a rate of 3.5% every 300m of altitude.

NOTE: If the carburettor is modified to operate at high altitude, the mixture of air and fuel will be too poor to operate at low altitudes. The running of a modified generator at low altitude can cause overheating and consequent engine damage. Hence, it is necessary to change the carburettor to its original configuration.

6.4 Recharging the battery from the charging port

The CRETA SILENT SOL and CRETA SILENT RC models have a charging port (CHARGER PORT) to recharge the battery of the generator. The CRETA SILENT ATS model hasn't it, because the battery of the generator is charged from an external ATS box through the communication connector of 7 wires.

Connect the battery charger (included with the machine) to a 230V socket and to the charging port (CHARGER PORT) on the control panel of the generator. Charging can take around four hours.



NOTE: Do not use chargers or other plugs different of the original. If you need to replace the charger, purchase an original from your GENERGY supplier.

If you do not have a 230V socket, you can start the generator manually and let it run for a few hours. The battery also recharges from the engine.

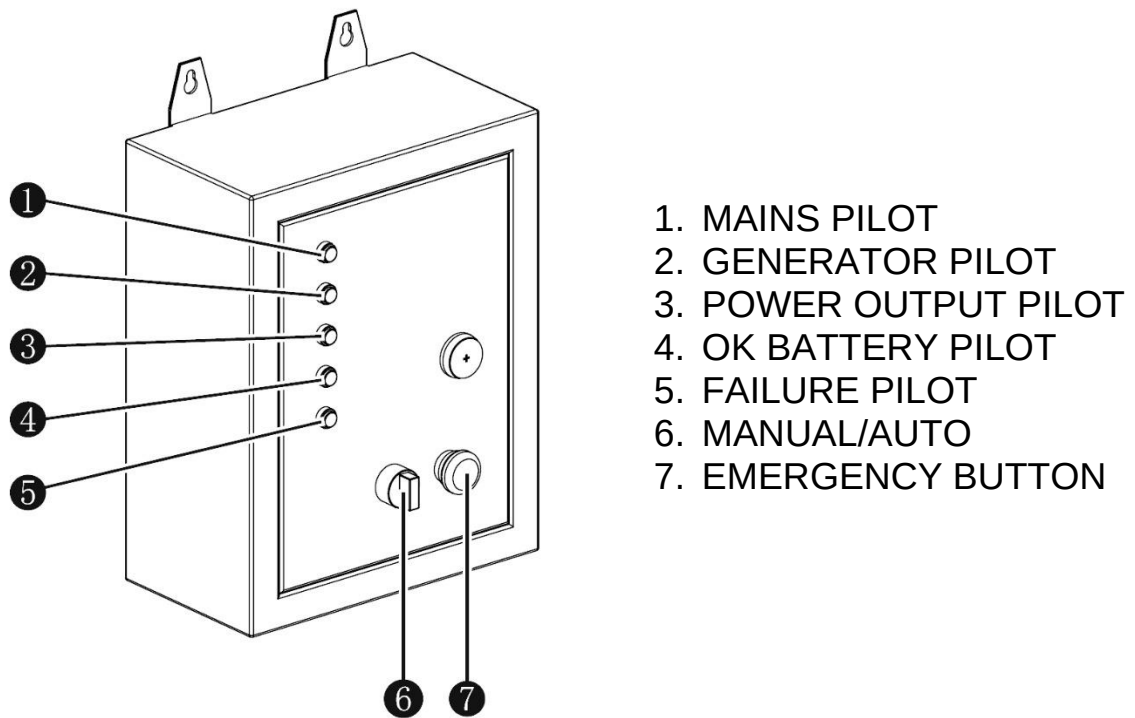
After charging, if the battery still does not work, take it to a technical service for inspection, it may be in poor condition and needs to be replaced.

7 Mains failure mode (CRETA SILENT ATS):

7.1 Introduction

The ATS (automatic transfer switching) system allows to control the start and stop functions of the generator, as well as the conversion between the generator output and the mains output. The signal communication between the ATS and the generator is performed through a cable of 7 lines. The user can decide if he wants to work in automatic or manual mode, and also to select between generator output or mains output.

7.2 The panel components of the ATS box



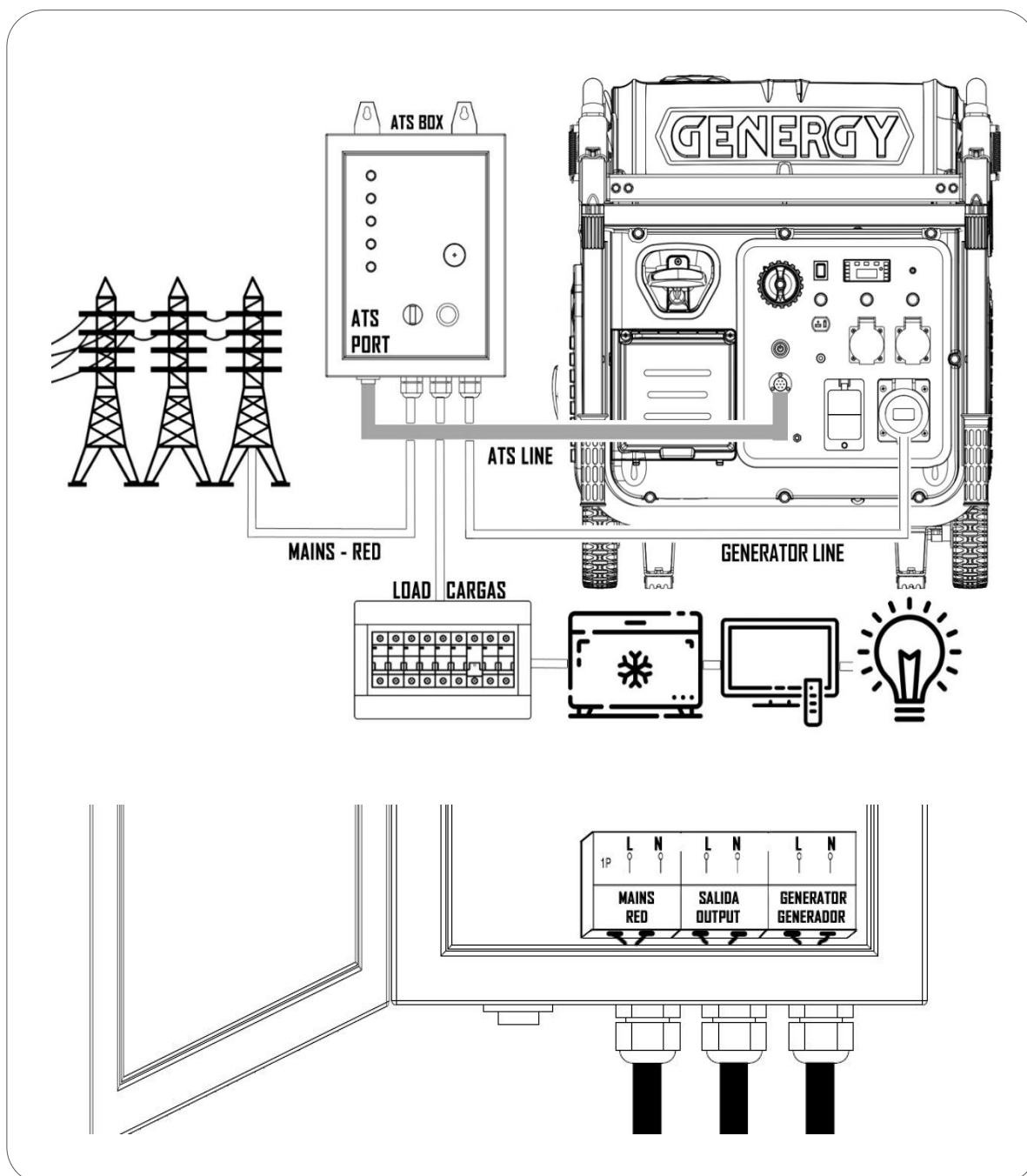
7.3 Electrical parameters

Power supply: DC10-15V
Input voltage: AC220-240V
Rated frequency: 50-60Hz
Maximum power: 10000W
Maximum intensity: 45A
Connection between ATS box and generator

7.4 Installation

⚡ DANGER: The connection of the generator and the ATS box must be done by a qualified electrician and always without mains voltage.

NOTE: The diagram below is for reference only and is only intended to assist in the interpretation of its operation. The user is exclusively responsible for the installation, which must be carried out in accordance with the electrical regulations of each country or region.



NOTE: The ATS box can only be connected to the CRETA SILENT ATS generator. It cannot be connected with the SILENT SOL-RC versions or with any other model.

7.5 Operation principle

The ATS box has two operation modes, manual and automatic:

Manual mode: When ATS control box is in manual mode, the generator is not automatically controlled.

- If there is power from the mains and the generator at the same time, the output power will be from the generator.
- If there is only generator power, the output power will be from the generator.
- If there is only mains power, the output power will be from the mains.

Automatic mode: The ATS box will control the generator. When there is mains power, it will always be the priority output power and the generator will remain on standby. When there is a mains power cut, the generator will automatically start and supplies power.

In case of a mains power cut, the generator has 40 seconds to start with a maximum of six start attempts during that time. If the engine fails to start within 40 seconds, it falls in error mode and the **FAILURE PILOT** will light up for a minute.

The stop of the generator also has a limit of 10 seconds. If the generator does not stop within that time, the system will consider that there is a shutdown failure and the **FAILURE PILOTE** will light up.

The **PILOT FAILURE** is only for informational purpose, it does not affect its running.

When the mains power is supplying the devices, at the same time it is supplying the battery of the generator with DC 14.4V. So that the optimal level of the charge in the battery is guaranteed, even if the generator is on standby for long periods of time.

7.6 Running

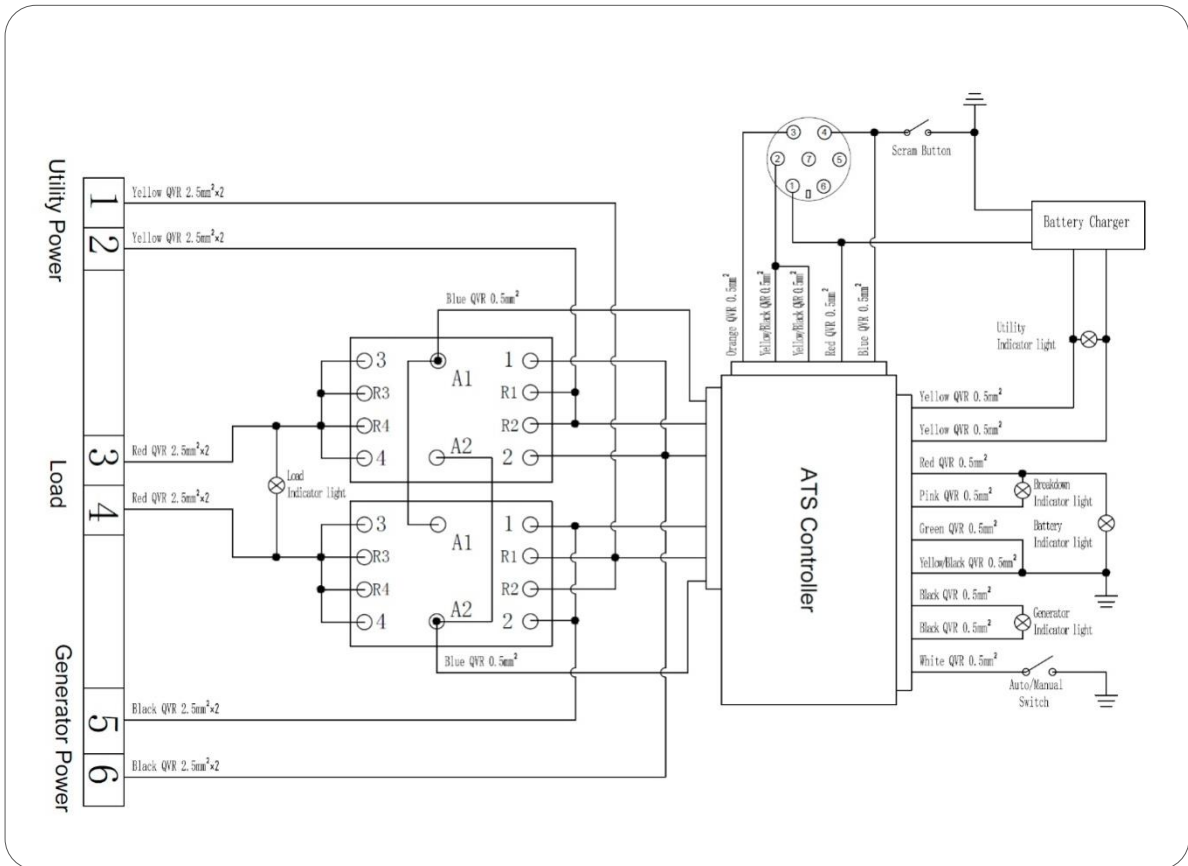
Manual mode:

1. Turn and release the safety button.
2. On the selector (6), select manual mode.
3. Start the generator.

Automatic mode:

1. Turn and release the safety button.
2. On the selector (6), select automatic mode.

7.7 Diagram



About fuel:

NOTE: Make sure that the generator starts at least every two months. Otherwise perform a manual start and keep the generator running for a few minutes to ensure that the fuel in admission circuit lines is renewed.

NOTE: If the generator is not used, or if is used very few times, make sure that the same gasoline does not remain in the tank for more than a year, otherwise replace it.

NOTE: If you are aware that the generator will not run for long periods, choose to fill the tank completely. In contact with oxygen, the gasoline accelerates its degradation. If the tank is completely full the degradation will be slower. You can also add a gasoline stabilizer to delay the degradation.

NOTE: Never, GENERGY will be responsible for personal or property damage that may arise from the lack of supply due to a generator failure.

If you have any questions, contact us by spv@sg-group.es.

8 Photovoltaic automatic mode (CRETA SILENT SOL):

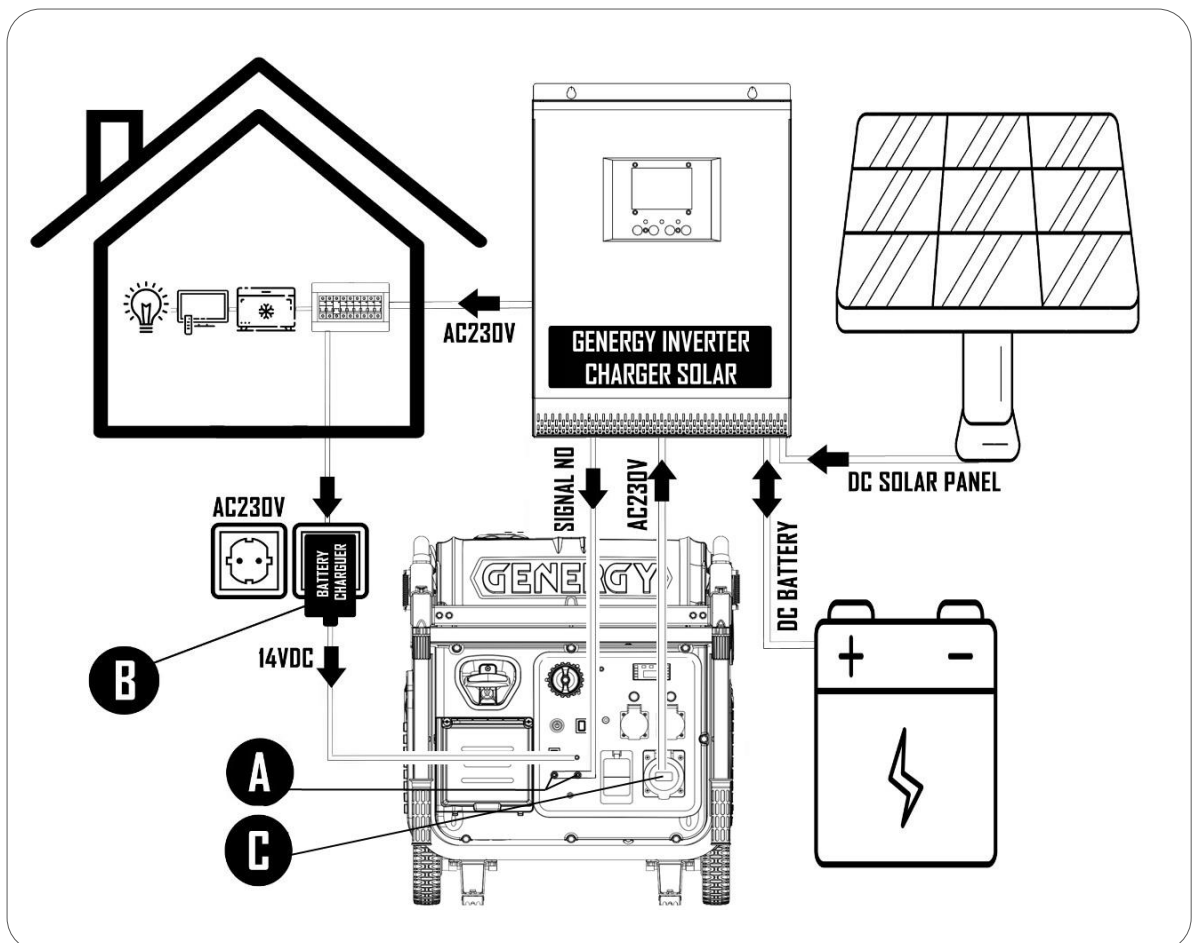
8.1 Introduction

The CRETA SILENT SOL model has been specifically designed to support a solar system in exceptional cases where solar energy is not enough. The generator is ready to start and support the photovoltaic system, as well as stop when this support is no longer needed. The start and stop of the generator is performed by a contact NO (Normally Open) sent by the solar controller.

8.2 Installation

DANGER: The connection of the generator to the solar system must only be carried out by the technician of the photovoltaic system, because it is necessary to set parameters for start and stop the generator in the solar controller.

NOTE: This diagram below is simply for reference and is only intended to assist in the interpretation of its operation. The user is exclusively responsible for the installation, which must be carried out in accordance with the electrical regulations of each country or region.



A Contact NO (Normally Open) to start and stop the generator:

- **Contact open:** generator on standby
- **Contact closed:** generator starts and stays running until the contact reopens.

Please note that not all solar controllers are prepared to work with a generator. Check with your solar technician or with the supplier of the controller.

Start sequence: When the generator contact closes, the start attempt begins. If this is unsuccessful, new attempts will be performed up to a maximum of five. If the generator fails the five pre-programmed attempts, it will fall into error mode.

B Generator battery support: The generator has a charging port on the panel to recharge or to keep the battery charge. Connect the charger supplied to the 230V mains socket and its DC 14V output to the port on the control panel.

 **NOTE:** Do not use a charger different of the original. If you have to replace the original charger, purchase an original GENERGY.

C Use the 32A socket as power supply for the controller: This 32A socket allows the maximum power output from the generator.

 **NOTE:** Do not use one of the two 16A sockets for this purpose because the power output will be limited to 16A (3680W).

About fuel:

 **NOTE:** Make sure that the generator starts at least every two months. Otherwise perform a manual start and keep the generator running for a few minutes to ensure that the fuel in admission circuit lines is renewed.

 **NOTE:** If the generator is not used, or if is used very few times, make sure that the same gasoline does not remain in the tank for more than a year, otherwise replace it.

 **NOTE:** If you are aware that the generator will not run for long periods, choose to fill the tank completely. In contact with oxygen, the gasoline accelerates its degradation. If the tank is completely full the degradation will be slower. You can also add a gasoline stabilizer to delay the degradation.

 **NOTE:** Never, GENERGY will be responsible for personal or property damage that may arise from the lack of supply due to a generator failure.

If you have any questions, contact us by spv@sg-group.es.

9 Maintenance:

The purpose of the maintenance plan is to ensure that the generator remains in good working condition and that it reaches the maximum of its useful life.

 **DANGER:** Before doing any maintenance, turn off the engine. If you need to start the engine for any checking, first ensure that the area is well ventilated. The exhaust gases contain carbon monoxide, which is poisonous to the user.

 **NOTE:** Apply only GENERGY original parts or, if not available, components of proven quality.

Maintenance plan:

SERVICE	STAGES OF MAINTENANCE
Engine oil	Check the oil level before each use. After 20 hours, the first oil change should be made. Every 100 hours of use, do new oil changes.
Air filter	Check and clean every 50 hours. At a maximum of 250 hours or earlier if it is damaged, replace it.
Spark plug	Clean and adjust the electrode every 50 hours. At a maximum of 250 hours or earlier if it is damaged, replace it.
Engine valves*	Adjust every 500 hours*
Combustion chamber *	Clean every 500 hours*
Fuel tank*	Clean every 500 hours*
Fuel hose*	Replace every 2 years or earlier if it is damaged*

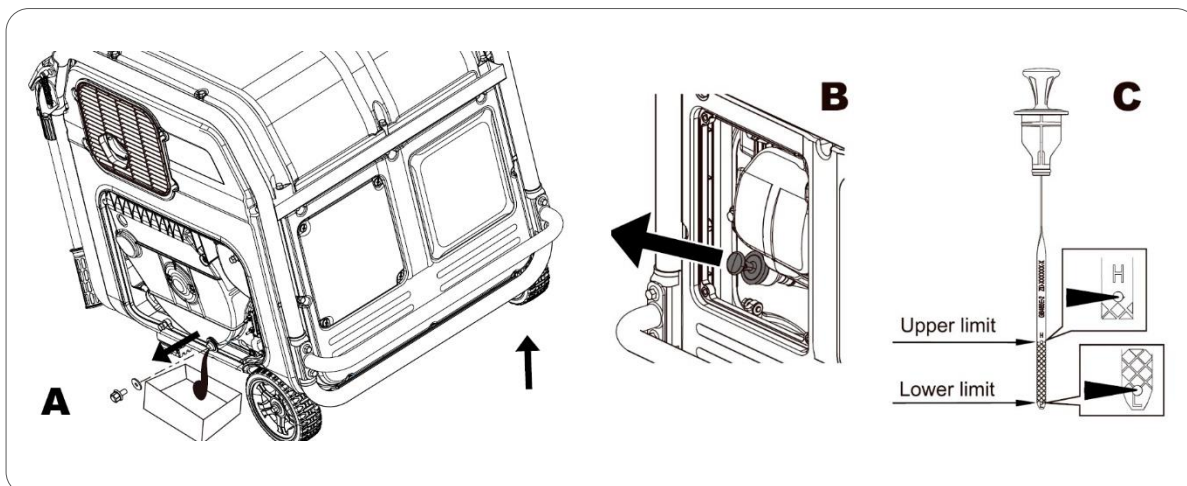
 **NOTE:** If you use the generator in places with a lot of dust or with high temperatures, does more frequent maintenance.

 **NOTE:** All services marked with an asterisk (*) should be performed by GENERGY Service or a qualified service. You must save the report of the work done by the technical service.

 **NOTE:** The failure of compliance with the maintenance plan will shorten the life of the generator and will increase the possibilities of malfunctions or damages. The warranty will not be applied in these cases. If one or more services planned were not done, the warranty will not be applied, unless authorized by the GENERGY Service or a GENERGY Authorized Service.

9.1 Oil change

1. Keeps the engine running for 5 or 10 minutes, so that the oil can reach some temperature and decrease its viscosity (more liquid). In this way, it will be easier to extract it completely.
2. Under the oil drain hole, place a suitable container to collect the used oil, according to image A.
3. Unscrew the oil drain screw by turning it counter clockwise. Save the screw and its gasket.
4. Remove the cap with the oil level, so that the engine receives air and expels the oil faster, according to image B.
5. Turn the engine by pulling the starter rope smoothly. Thus, the oil housed in the moving parts of the engine can be extracted.



6. Once all the engine oil has been extracted, put back the drain screw with its gasket. In case of spillages, clean.
7. Refill with the recommended oil according to images B and C. For more information, review the chapter "Recharging the battery from the charging port" of this user manual.

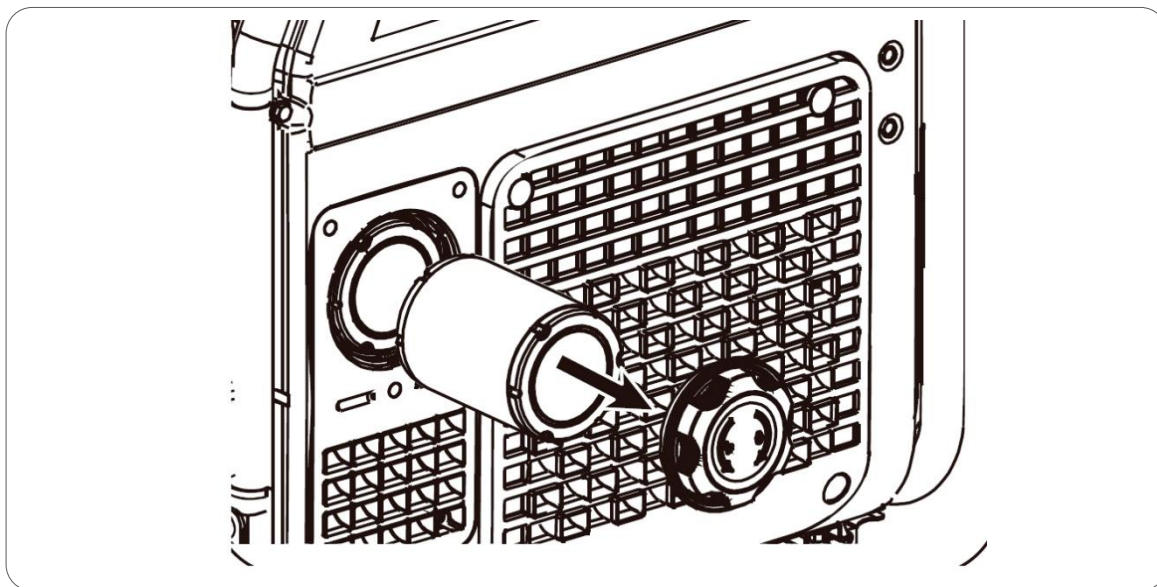
9.2 Air filter maintenance

NOTE: The dirt in the air filter reduces the air flow in the carburettor, limiting its combustion and promoting serious engine problems. Clean the air filter regularly, according to the maintenance plan in this manual. In dusty areas, filter cleaning should be more frequent.

NOTE: The generator should never run without the air filter, otherwise we will have a quick engine wear.

⊘ WARNING: Do not use gasoline or solvents with a low flash point to clean the filter. They are flammable and explosive under certain conditions.

1. Rotate the filter cover and pull it out.
2. Take out the filter cartridge.



3. Clean the air filter using a soap and water solution. Let it dry completely.
4. Gently strike the inner paper filter to remove the layer of dirt. Replace it if it is very dirty or you see that the motor loses power or works irregularly.

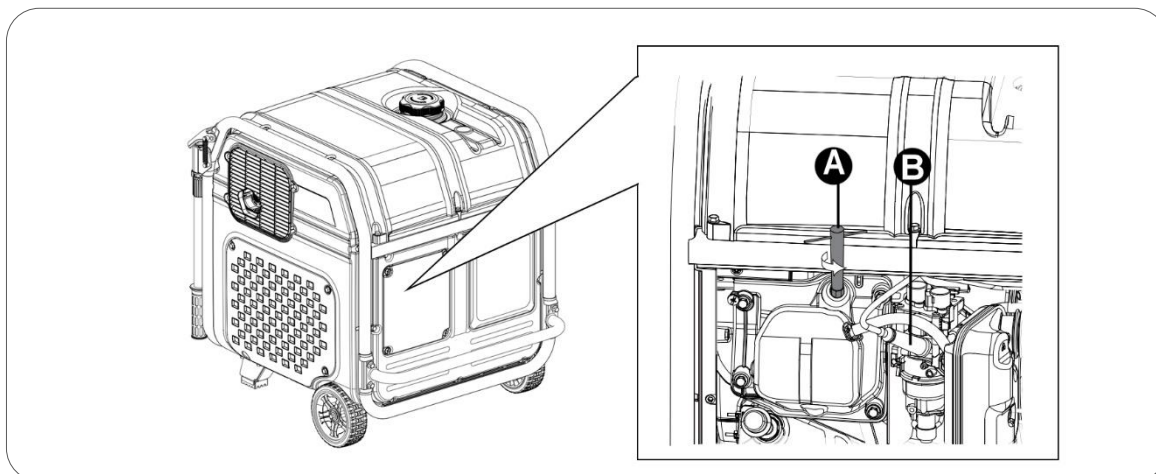
NOTE: The air filter is an essential part that affects equipment performance and emissions. Any modification is forbidden.

Running the generator without an air filter or improperly installed will cause severe wear and serious engine damage. In all these cases the total guarantee of the machine would be annulled

9.3 Spark plug maintenance

Recommended spark plugs: **TORCH** F6RTC, **NGK** BP7ES, **BOSCH** WR3C.

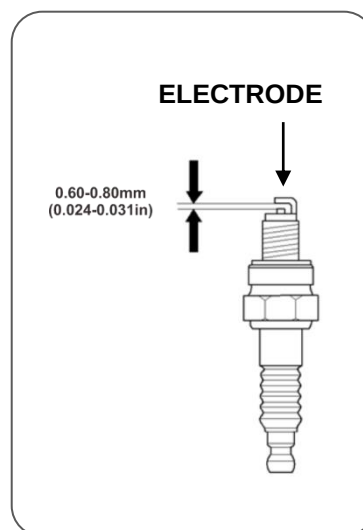
1. Remove the cap of spark plug (**B**), pulling it out.
2. With a spark plug wrench (**A**) unscrew and remove the spark plug from the engine (turn it counter clockwise).



3. Visually check the spark plug. If the spark plug insulation is cracked or chipped, replace it with a new one. To clean dirt on the electrode, use a very thin wire brush.
4. Check the electrode distance with a calliper. The distance should be between 0.6 and 0.8mm. If it does not match, adjust it carefully.
5. Carefully put back the spark plug, starting its threading manually to avoid the damage of the thread. With the spark plug fully threaded make a final tightening with a spark plug wrench, according to the following recommendations:

- New spark plugs: 1/2 turn
- Used spark plugs: 1/8 to 1/4 turn

6. Put back the cap of the spark plug.



NOTE: The spark plug must be firmly tightened. An incorrectly fitted spark plug can heat up and even damage the engine. On the other hand, over-tightening can damage the spark plug and damage the thread of the cylinder head.

10 Transport and storage:

10.1 Generator transport

To avoid spillages of fuel during transport of the generator, the fuel valve must be always closed and the generator must be tied (so that it does not move).

NOTE: The generator must be transported in its natural working position. Never transport the generator in other position (vertically or horizontally).

DANGER: Never start the generator inside of a transport vehicle. The generator should only be used in good conditions of ventilation.

DANGER: When parked and with the generator inside, the transport vehicle must not be exposed to the sun for a long time. Excessive temperature increases (caused by the sun exposure) and will evaporate the gasoline and after will promote an explosive environment inside of the vehicle.

WARNING: In case of transport, do not fill too much the fuel tank.

CAUTION: If the generator will be transported over rough roads or fields, empty the fuel tank.

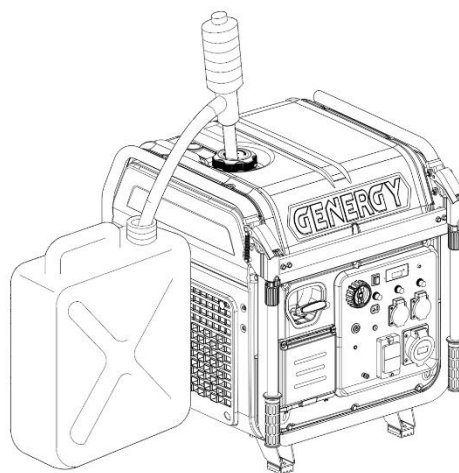
10.2 Generator storage

When stored for long periods of time, gasoline loses its properties and creates waste, which can block the fuel path to the carburettor, making it impossible to start. If the generator does not run for long periods of time (2-3 months), it is necessary to extract all gasoline from the tank and carburettor.

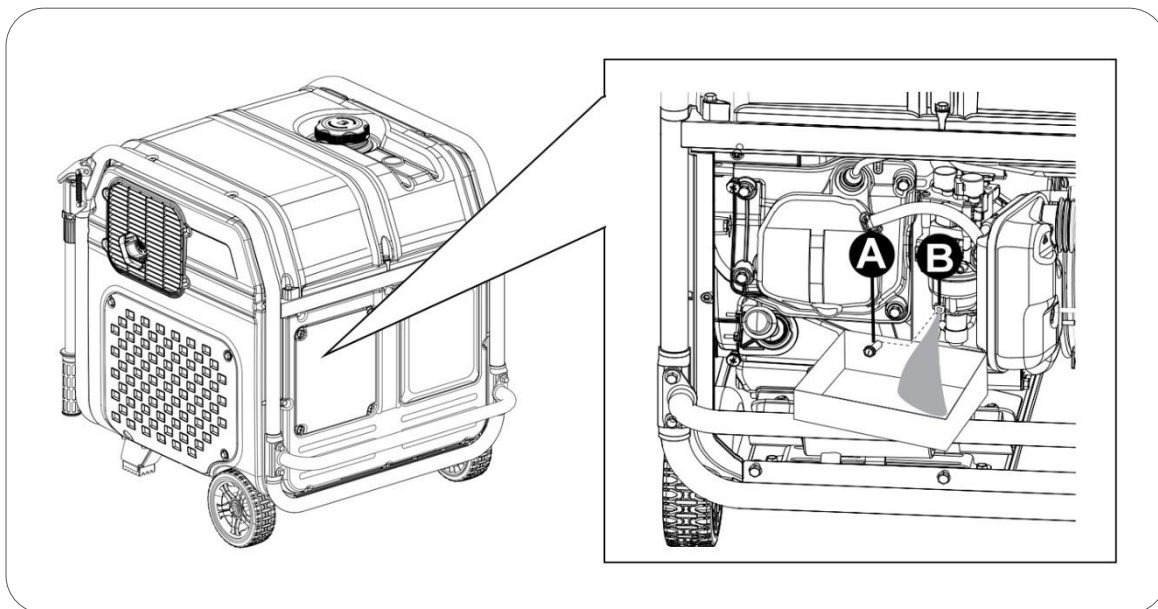
1. Remove all fuel from the tank with a suction pump and store it in a suitable container.

NOTE: Do not use normal plastic bottles, because some plastics decompose partially in contact with gasoline and become it contaminated. If reused, contaminated gasoline can damage an engine.

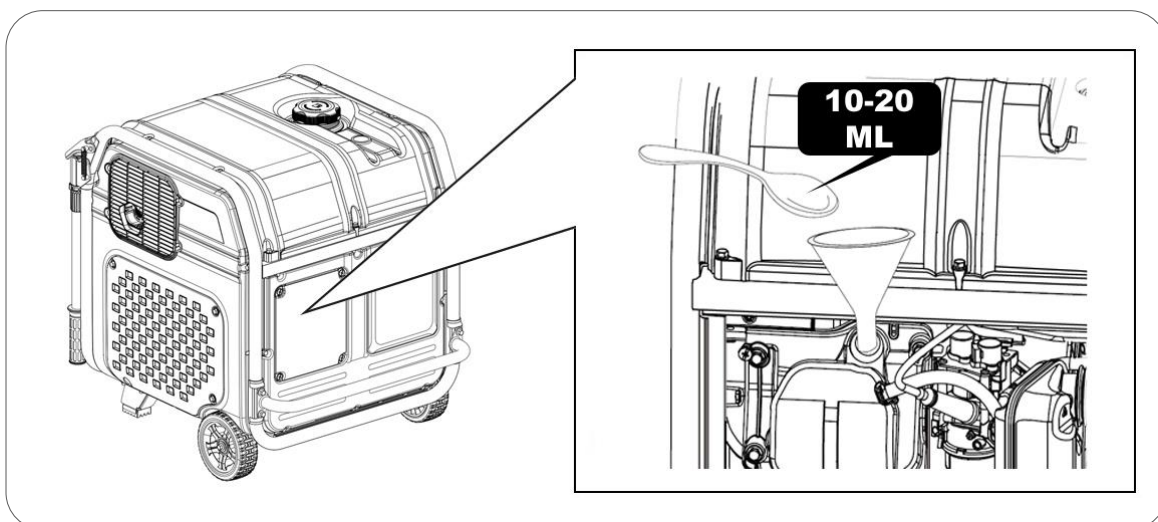
DANGER: Gasoline is explosive and flammable. During gasoline handling, never smoke or cause any spark or flame.



2. Under the oil drain hole, place a suitable container to collect the drained gasoline.
3. Using a screwdriver unscrew the carburettor drain screw (A), the gasoline will start to flow through the carburettor drain hole (B). Once all gasoline is drained, retighten the drain screw.



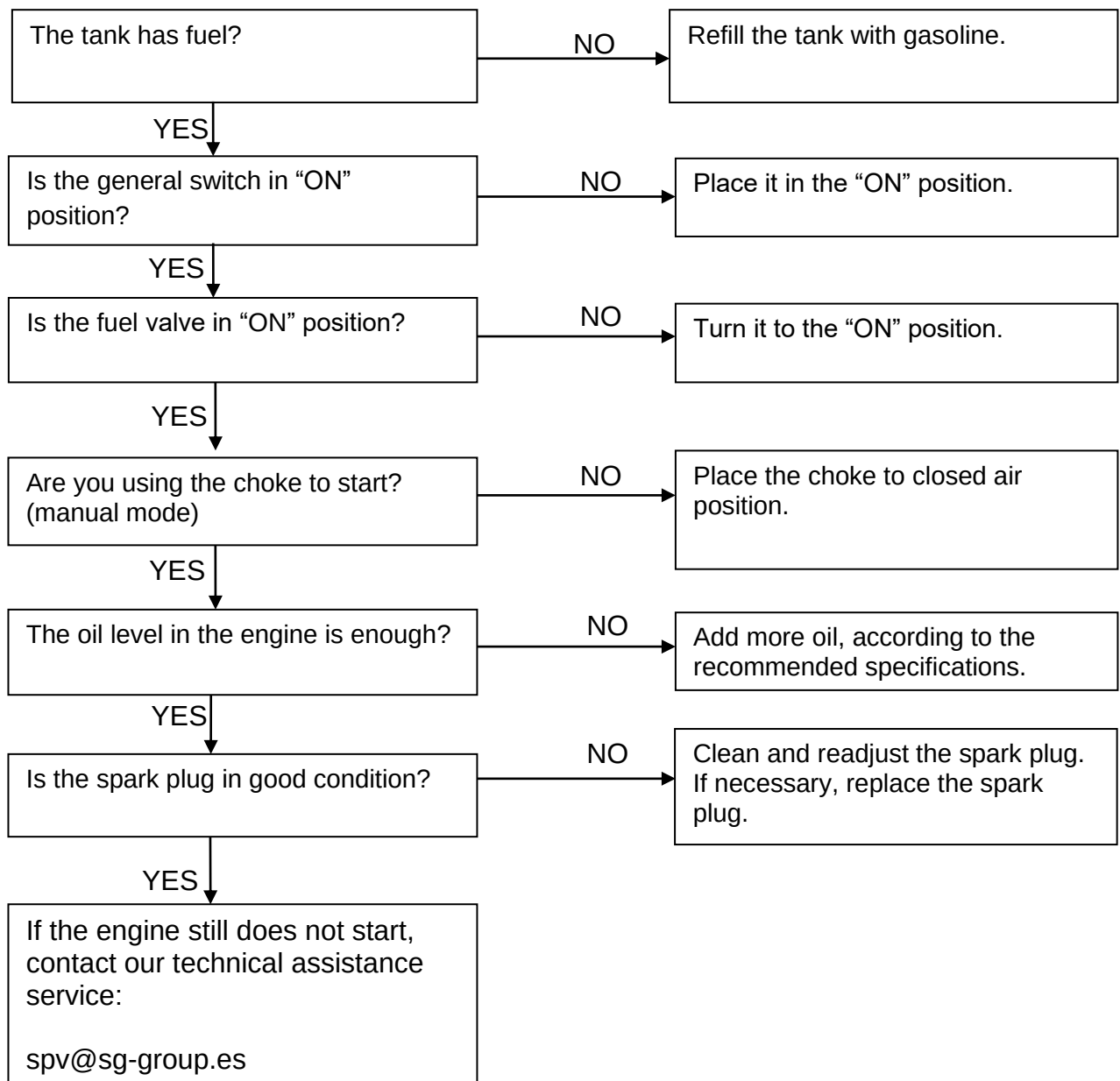
4. Remove the spark plug (see chapter 9.3) and put directly into the cylinder, a teaspoon of clean engine oil (10 ~ 20ml). Smoothly, pull the starter rope of the engine, which will turn the engine and distribute the oil. Then, put back the spark plug



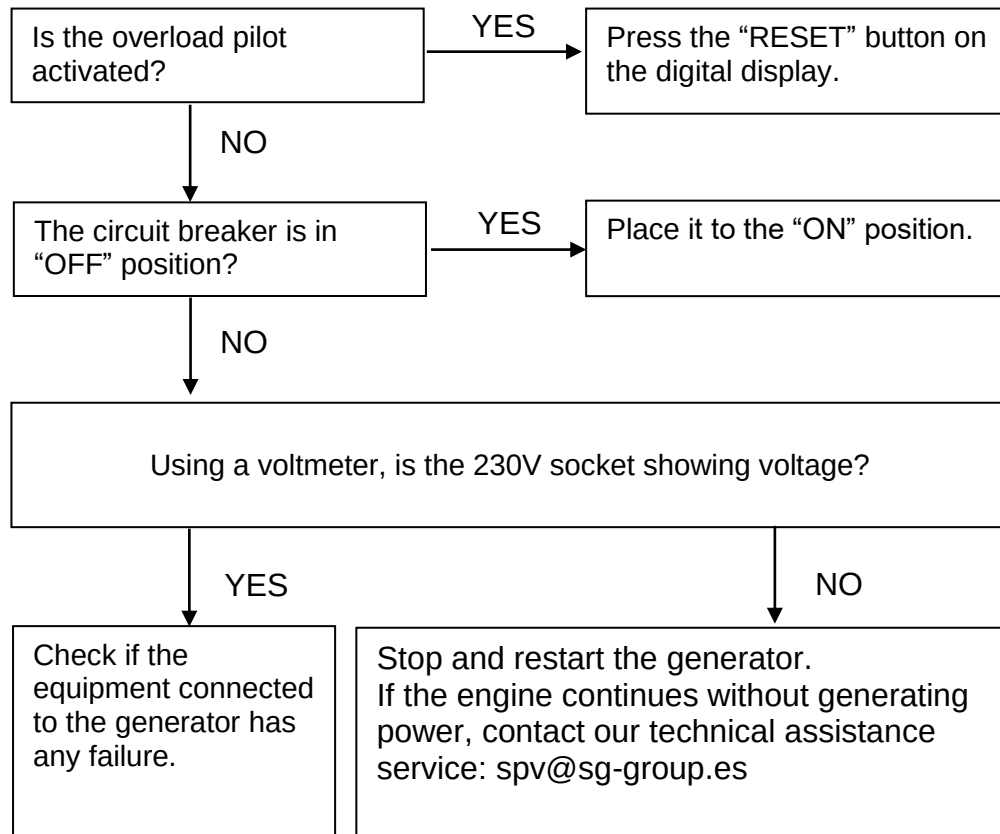
5. Slowly, pull the starter rope until you feel resistance. At this point, the piston is rising in its compression stroke and the admission and exhaust valves are closed. In this position, moisture cannot enter in the motor, which provides protection against internal corrosion.

11 Problem solving:

- If the engine does not start:



- Single-phase equipment (230V) connected to the generator does not work:



12 Technical information:

MODEL	CRETA SILENT RC
Voltage stabilizer system —Voltage — Frequency	Inverter 230V 50Hz THD <3%
AC 230V Maximum (S 25min)	7500W
AC 230V Rated (COP)	7200W
AC 400V Maximum (S 25min)	-
AC 400V Rated (COP)	-
Type by number of phases	Single phase
Power factor	1
Engine model	SGB PRO 460
Cylinder	459CC
Engine type	Gasoline, 4 times OHV air-cooled
Average level of noise pressure 7mts LpA (<i>Ralenti</i> -nominal)	61.5dB(A) – 75.5dB(A)
Level of guaranteed acoustic power LwA	96dB(A)
Start type	Manual – Electric – Remote control
Fuel tank capacity	23L
Consumption per hour 25% 50% 75% of load (approximated)	1.7/LH-2.6L/H-3.6L/H
Autonomy at 25% 50% 75% of load (approximated)	14H —9H — 7H
Oil capacity and grade	1.1L — SAE-5W40 SYNTHETIC
Isolation level	F
Class according to insulation quality	A
Performance class	G2
Normalization	ISO 8528-13:2016
Transport kit	Handlebar with 8" wheels
Dimensions	667 x 677 x 630mm
Weight	88Kg

MODEL	CRETA SILENT ATS
Voltage stabilizer system —Voltage — Frequency	Inverter 230V 50Hz THD <3%
AC 230V Maximum (S 25min)	7500W
AC 230V Rated (COP)	7200W
AC 400V Maximum (S 25min)	-
AC 400V Rated (COP)	-
Type by number of phases	Single phase
Power factor	1
Engine model	SGB PRO 460
Cylinder	459CC
Engine type	Gasoline, 4 times OHV air-cooled
Average level of noise pressure 7mts LpA (<i>Ralenti</i> -nominal)	61.5dB(A) – 75.5dB(A)
Level of guaranteed acoustic power LwA	96dB(A)
Start type	Manual – Electric – Mains failure (requires ATS box)
Fuel tank capacity	23L
Consumption per hour 25% 50% 75% of load (approximated)	1.7/LH-2.6L/H-3.6L/H
Autonomy at 25% 50% 75% of load (approximated)	14H —9H — 7H
Oil capacity and grade	1.1L — SAE-5W40 SYNTHETIC
Isolation level	F
Class according to insulation quality	A
Performance class	G2
Normalization	ISO 8528-13:2016
Transport kit	Handlebar with 8" wheels
Dimensions	716 x 606 x 707mm
Weight	88kg

MODEL	CRETA SILENT SOL
Voltage stabilizer system — Voltage — Frequency	Inverter 230V 50Hz THD <3%
AC 230V Maximum (S 25min)	7500W
AC 230V Rated (COP)	7200W
AC 400V Maximum (S 25min)	-
AC 400V Rated (COP)	-
Type by number of phases	Single phase
Power factor	1
Engine model	SGB PRO 460
Cylinder	459CC
Engine type	Gasoline, 4 times OHV air-cooled
Average level of noise pressure 7mts LpA (<i>Ralenti</i> -nominal)	61.5dB(A) – 75.5dB(A)
Level of guaranteed acoustic power LwA	96dB(A)
Start type	Manual – Electric – Automatic by contact NO
Fuel tank capacity	23L
Consumption per hour 25% 50% 75% of load (approximated)	1.7/LH-2.6L/H-3.6L/H
Autonomy at 25% 50% 75% of load (approximated)	14H – 9H – 7H
Oil capacity and grade	1.1L — SAE-5W40 SYNTHETIC
Isolation level	F
Class according to insulation quality	A
Performance class	G2
Normalization	ISO 8528-13:2016
Transport kit	Handlebar with 8" wheels
Dimensions	667 x 677 x 630mm
Weight	88kg

Measurements of noise levels:

- ✓ The average noise pressure level at 7 meters (LpA) is the arithmetic average of the noise level obtained from four directions and 7 meters away from the generator.

 **NOTE:** Different environments can result in different noise levels.

Harmonized standard applied:

- ✓ ISO8528-13:2016: Generator sets driven by combustion engine.

Applicable EC directives:

2006/42/EC:	Machinery Directive
EU/2016/1628:	Engine-driven machine emissions
2014/30/EU:	Electromagnetic compatibility
2014/35/EU:	Low voltage directive
2000/14/EC (repealed by 2005/88 / EC):	Noise emissions directive
2011/65/EU:	RoHS Directive
(EC) no-1907/2006:	REACH regulation

13 Warranty information:

The warranty covering of your generator (an option of the following):

- ✓ 2 years for machines billed to consumers (end user).
- ✓ 1 year for machines billed to companies, cooperatives or any other legal entity other than the final consumer (end user).

The warranty period is defined only by the information on the invoice: type of purchasing entity and date of purchase. Never, it is considered as a reference the purpose or the usage that the product had.

This warranty covers any manufacturing defect that the generator may have during the period of its warranty period, with the assumption that the maintenance plan is respected and its care is suitable. The warranty covers the repair parts and the necessary manpower.

The warranty does not cover any type of consumable (filters, batteries, spark plugs, etc.), nor any type of preventive maintenance. Also no covered by the warranty, the parts with wear caused by the normal running of the generator.

Instruções originais

OBRIGADO pela compra de um gerador a gasolina GENERGY.

- Os direitos de autor destas instruções são propriedade da nossa empresa, Stock Garden Group.
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- A Stock Garden Group reserva-se no direito de alterar os seus produtos com a marca GENERGY, bem como os seus manuais, sem aviso prévio.
- Este manual deve ser utilizado como parte do gerador. Em caso de revenda do gerador, deve-se entregar o manual com o gerador.
- Este manual contém os procedimentos corretos para operar com o gerador. Por favor, antes de cada utilização, ler cuidadosamente. O seu funcionamento correto e seguro vai garantir a segurança do utilizador e prolongar a vida útil do gerador.
- Continuamente, a Stock Garden Group inova no desenvolvimento dos seus produtos GENERGY, tanto na sua conceção como na sua qualidade. Apesar de esta ser a versão mais atualizada do manual, é possível a deteção de ligeiras diferenças entre o seu conteúdo e o produto.
- Em caso de pedido de esclarecimentos ou dúvidas, contacte o seu distribuidor GENERGY.

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1 Informação sobre a segurança:

A segurança é muito importante. Ao longo de todo o manual encontram-se mensagens importantes de segurança. Leia, compreenda e cumpra estes avisos para garantir que a utilização do gerador é totalmente segura.

Dividimos as mensagens de segurança em 4 tipos diferentes, de acordo com a gravidade das suas consequências (caso não sejam cumpridas):

 PERIGO	Situação iminentemente perigosa que provocará lesões graves ou mortais , se não for evitada.
 AVISO	Situação potencialmente perigosa que pode provocar lesões graves ou mortais , se não for evitada.
 PRECAUÇÃO	Situação potencialmente perigosa que pode provocar lesões leves ou moderadas , se não for evitada.
 NOTA	Situação que poderá causar danos materiais , se não for evitada.

1.1 Resumo dos perigos mais importantes durante a utilização.

Antes de utilizar o gerador, deve ler e compreender todo o manual!



A utilização do gerador sem estar corretamente informado do seu funcionamento e das suas normas de segurança, implica perigos para o utilizador e instalações.
Não permita que ninguém utilize o gerador, sem estar habilitado para tal.

A gasolina é explosiva e inflamável!



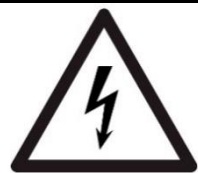
Não reabastecer com o gerador em funcionamento.
Não reabastecer se há presença de chamas ou se o utilizador está a fumar.
Limpar os derrames de gasolina.
Antes de reabastecer, primeiro deixar o gerador arrefecer.
Utilizar sempre vasilhames homologados para a gasolina.
Não utilize o gerador em atmosferas potencialmente explosivas, instalações de gás ou similares. Consulte sempre os responsáveis de segurança.

As emissões do motor contêm monóxido de carbono venenoso!



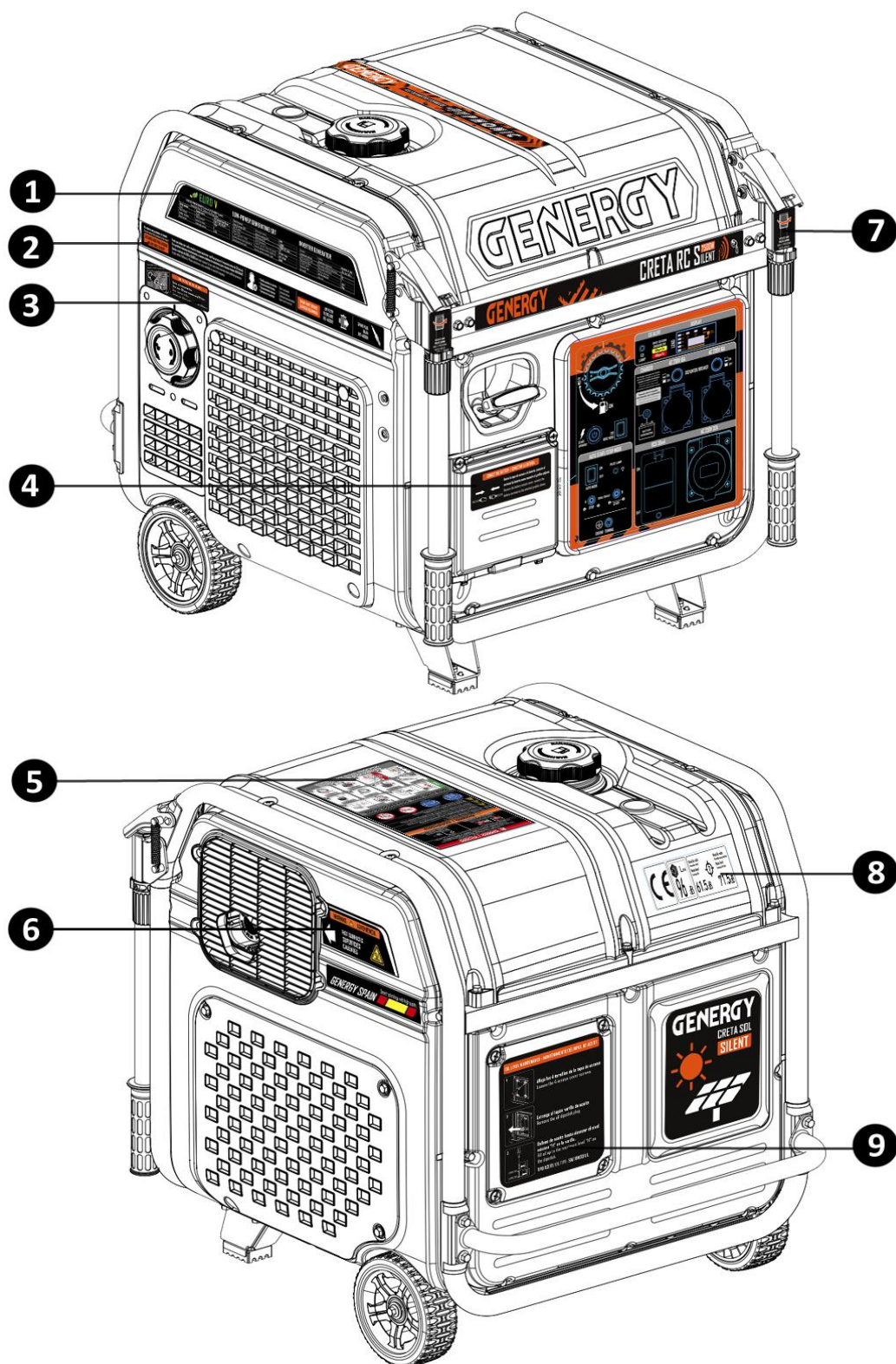
Nunca utilizar o gerador dentro de uma habitação, garagens, túneis, adegas ou qualquer outro lugar sem ventilação.
Não utilizar o gerador perto de janelas ou portas, onde os gases emitidos podem entrar no interior.
O escape expulsa do motor o monóxido de carbono venenoso, o qual não pode ser visto nem cheirado, pois é muito perigoso.

Atenção aos riscos elétricos!



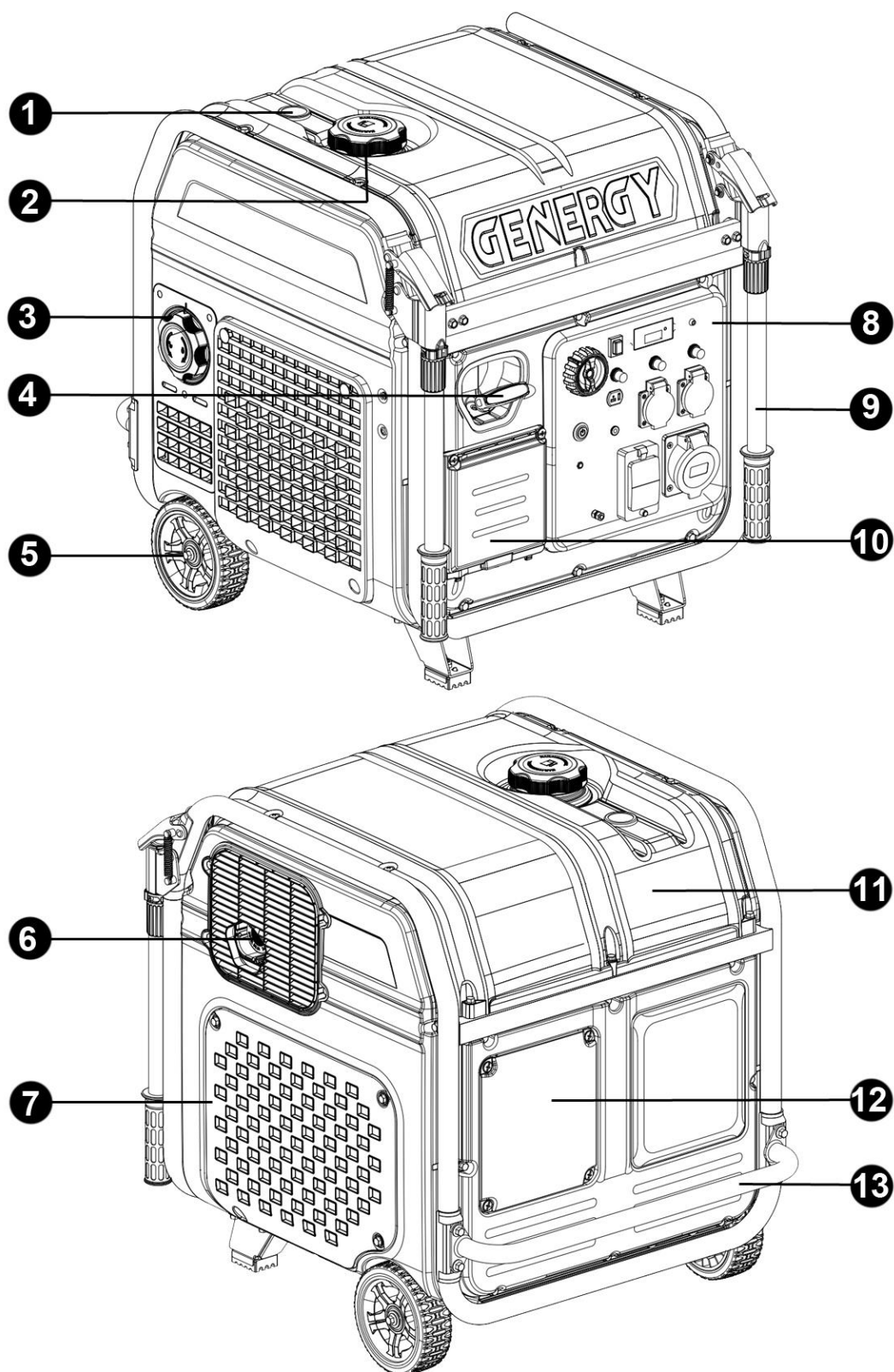
Não manusear o gerador com as mãos molhadas.
Não expor o gerador à chuva, humidade ou neve.
Verificar sempre o estado dos fios e conexões elétricas, e se os equipamentos a conectar estão em bom estado de funcionamento.
Conectar a tomada terra do gerador.

2 Localização das etiquetas de segurança e utilização:



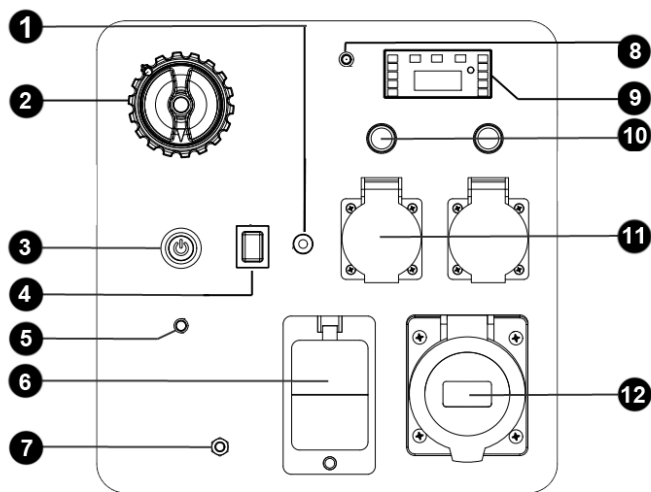
1-Especificações	2-Pós-venda	3-Info filtro de ar
4-Info ligação bateria	5-Segurança e arranque	6-Aviso perigo por temperatura
7-Info manga telescópica	10-Marcação CE e nível de ruído	9-Info alarme do óleo

3 Identificação dos componentes:

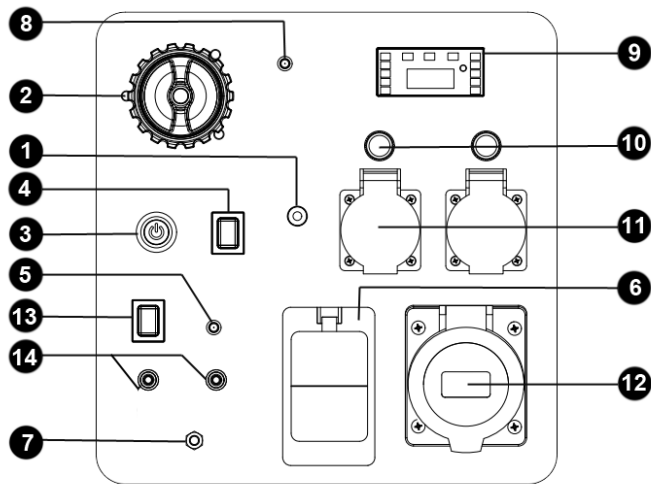


1-Visor do nível gasolina	2-Tampão da gasolina	3-Filtro do ar	4-Arranque manual
5-Kit de rodas 6"	6-Escape	7-Acesso motor	8-Painel de control
9-Manga telescópica	10-Acesso bateria	11-Depósito combustível	
12-Acesso motor para colocação de óleo		13-Manga de movimentação com duas pessoas.	

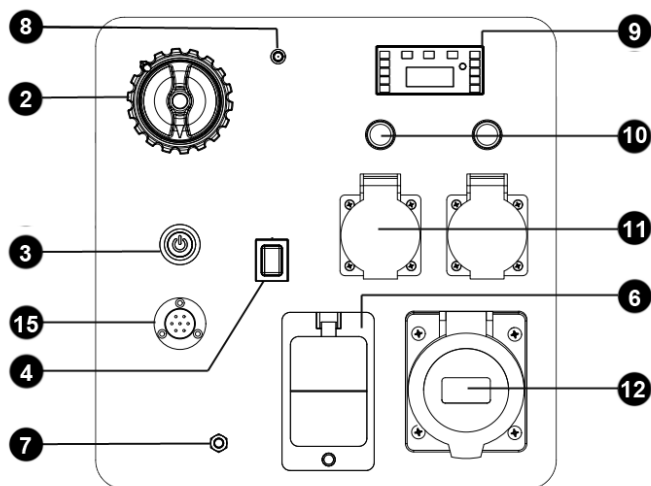
3.1 Painel de controlo



CRETA SILENT RC



CRETA SILENT SOL



CRETA SILENT ATS

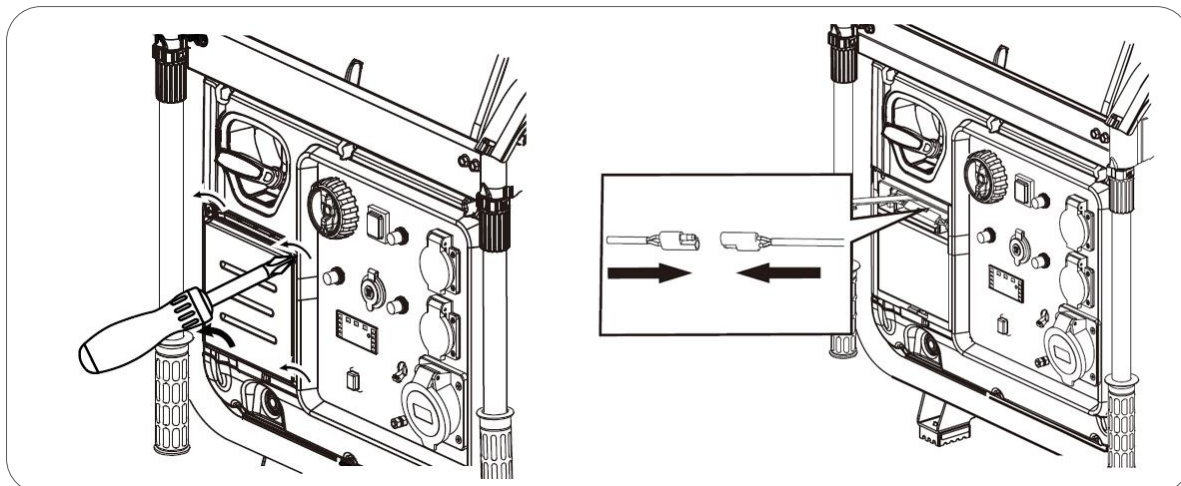
1-Porta carga bateria	2-Estrangulador-válvula de gasolina (roda seletora)
3-Botão de arranque	4-Botão modo ECO
5-Indicador modo automático	6-Diferencial 30mA
7-Conexão terra	8-Alarme monóxido de carbono
9-Visor digital	10-Disjuntor magnetotérmico tomadas 16A
11-Tomada de 16A	12-Tomadas de 32A
13-Botão de modo automático	14-Contacto seco arranque NA
15-Porta de entrada do quadro falha de rede ATS	

4 Verificações antes de colocar em funcionamento:

4.1 Ligações da bateria

1. Antes de conectar a bateria, verifique se a roda seletora do painel de controlo está na posição “OFF”.
2. Abra a porta de acesso e una os conectores rápidos, de acordo com a imagem abaixo.

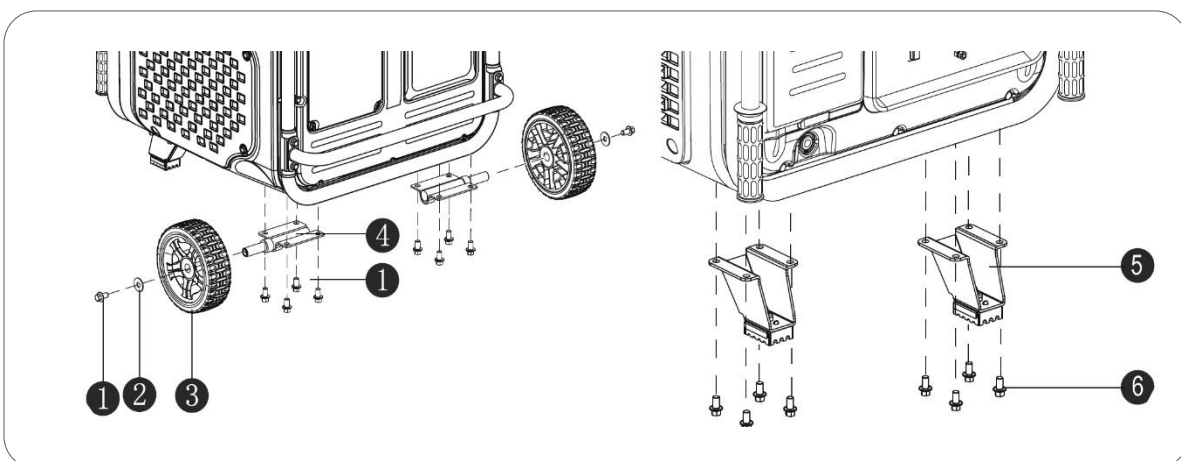
 **NOTA:** Verifique se a união entre os conectores é completa.



4.2 Montagem das rodas e pés de apoio

Fixar os eixos da roda (4) com os parafusos (1) incluídos. De seguida, coloque a roda (3) no eixo, e fixe com a anilha (2) e o parafuso (1).

Fixe os pés de borracha (5) com os parafusos (6) incluídos:

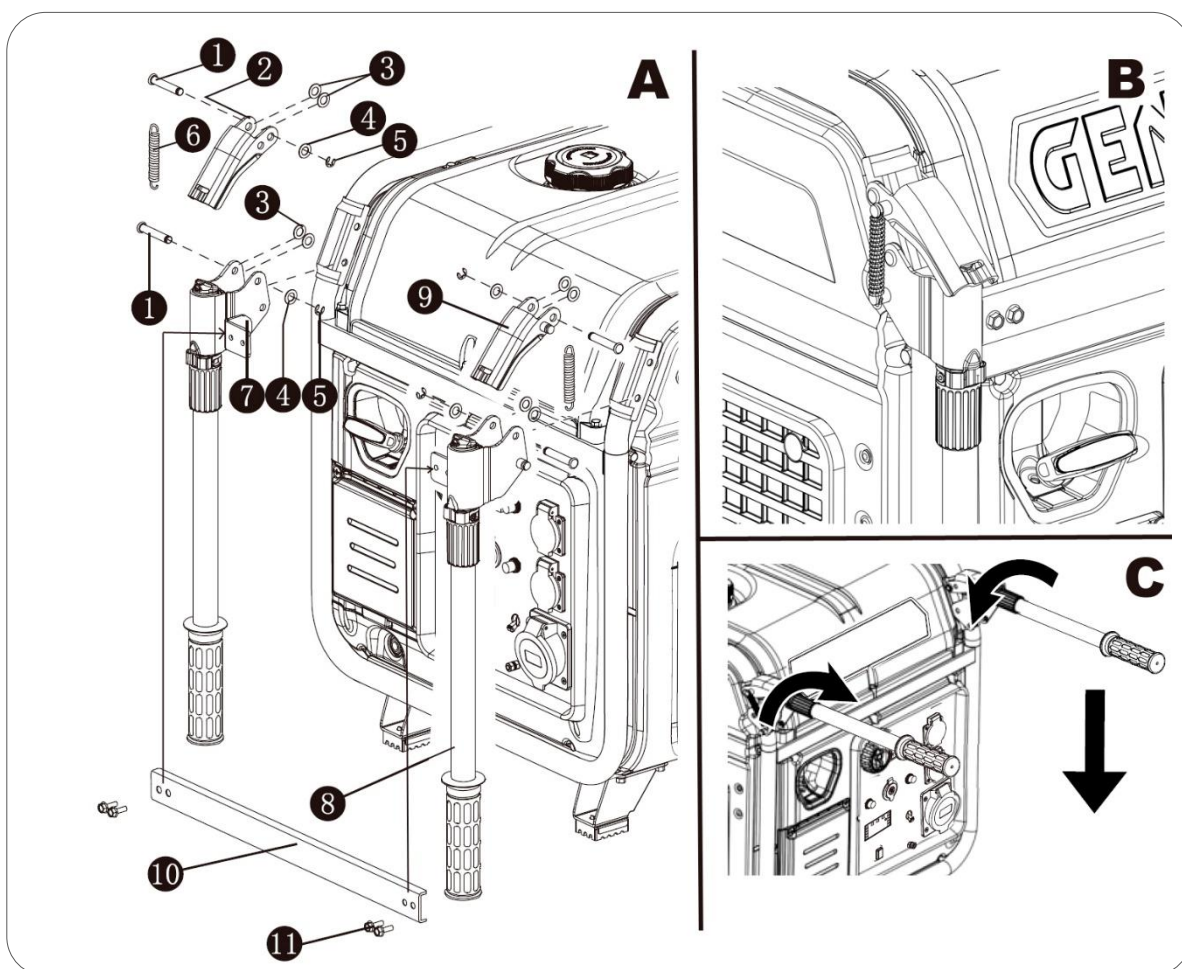


 **NOTA:** Não utilize o gerador sem as rodas e os pés de apoio devidamente instalados. Eles têm como finalidade absorver as vibrações do equipamento durante o seu funcionamento, evitando assim possíveis danos provocados por tensões e solavancos.

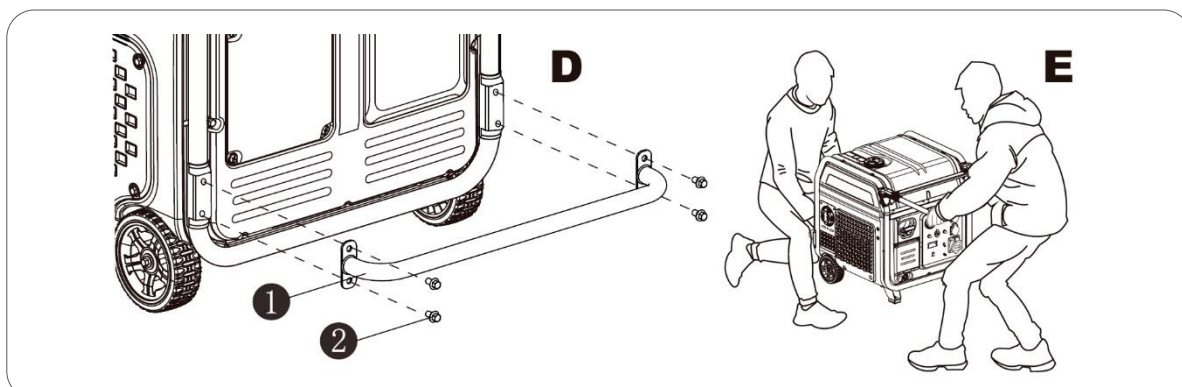
4.3 Montagem das mangas de transporte

Antes de mais, fixe as mangas (7-8) com os parafusos, tal como se descreve na imagem. Depois monte os bloqueadores superiores (9) com os seus fixadores e mola (6). Por último, instale a placa frontal (10) através dos furos interiores frontais nas mangas. Na imagem **B** veja o resultado final de todos os elementos montados.

NOTA: As mangas sobem livremente e ficam bloqueadas na parte superior. Para desbloquear e baixar, primeiro levante-os ligeiramente e depois rode as mangas na direção interior tal como na imagem **C**.



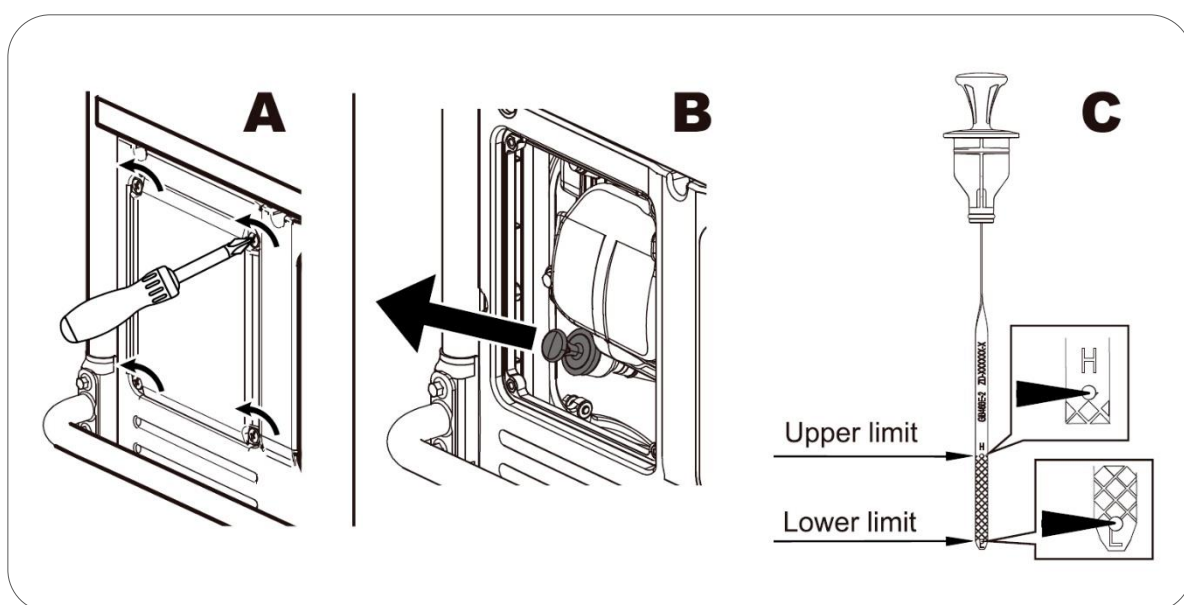
1. Instalar a manga traseira (1) segundo a imagem B. Esta manga permite o movimento do equipamento com duas pessoas.



4.4 Colocação e verificação do óleo

NOTA: De origem, o gerador é entregue sem óleo. **Não tente colocar o gerador em funcionamento, sem primeiro colocar o óleo no motor!**

1. Assegurar se o gerador está numa superfície perfeitamente plana e nivelada, para que não haja erro de leitura do nível de óleo no motor.
2. Com a ajuda de uma chave de fendas, retire os 4 parafusos e abra a tampa de acesso, segundo a imagem A.
3. Retirar o tampão com nível do óleo, segundo a imagem B.
4. Coloque óleo até atingir o limite “Upper Limit” do nível na vareta.



A quantidade indicativa de óleo a colocar para um nível correto é de 1.1L.

Utilizar preferencialmente um óleo sintético SAE5W40 com API “SJ” (USA) ou ACEA “A3” (EUROPA) ou mais atuais (ver especificações na embalagem). Este tipo de óleo terá um excelente desempenho em climas variáveis no continente europeu, tanto no inverno como no verão.

NOTA: Tenha em consideração que o motor pode consumir um pouco de óleo durante o seu funcionamento. Por isso, antes de cada utilização, verifique sempre o nível de óleo e reabasteça se necessário.

NOTA: Nunca utilizar óleos velhos, sujos, em mau estado ou de especificações desconhecidas (grau e qualidade). Não misture óleos de diferentes tipos.

4.5 Colocação e verificação do combustível

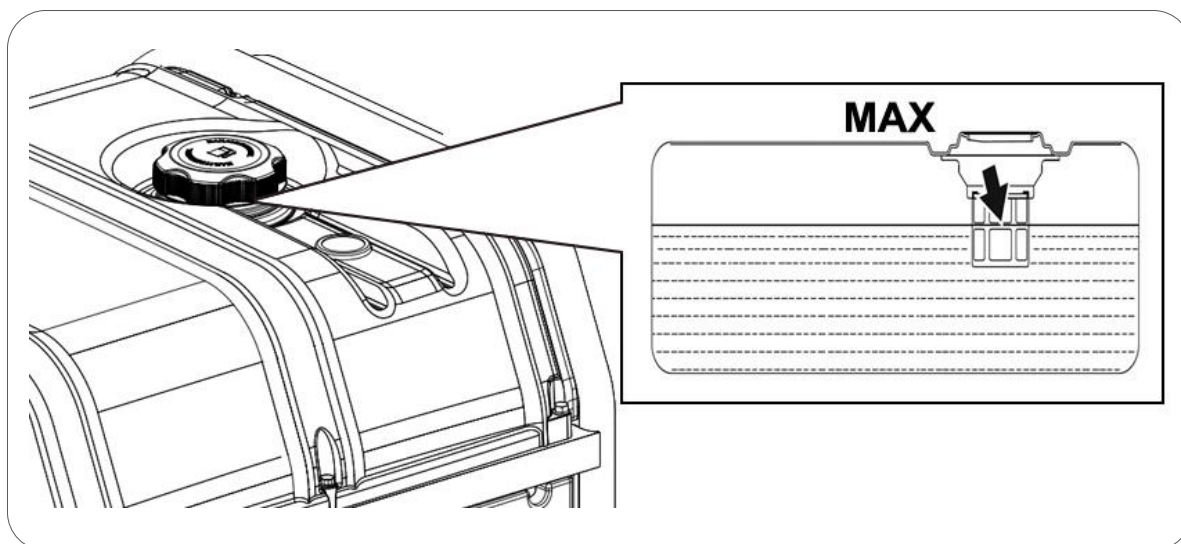
🗨 **NOTA:** Utilizar apenas gasolina sem chumbo (86 Octanas ou superior).

🗨 **NOTA:** Nunca utilizar gasolina velha, contaminada ou misturada com óleo/gasolina.

🗨 **NOTA:** Evitar a entrada de sujidade ou água no depósito de combustível.

🗨 **NOTA:** Não utilizar uma mistura de gasolina com etanol ou metanol, caso contrário, pode danificar seriamente o motor.

Retirar o tampão do depósito de combustível, rodando em sentido contrário aos ponteiros do relógio. Reabasteça de gasolina sem atingir o nível máximo do depósito (MAX), de acordo com a imagem abaixo. A capacidade aproximada do depósito é de 23 litros



⚡ **PERIGO:** A gasolina é extremamente explosiva e inflamável. No momento de reabastecimento, é totalmente proibido fumar, fazer fogo ou gerar qualquer tipo de chama. Tenha o mesmo cuidado no local onde armazena o combustível.

⊘ **AVISO:** Manter o combustível fora do alcance das crianças.

⊘ **AVISO:** Evitar derrames de combustível ao reabastecer (antes de novo arranque do motor, limpar possíveis derrames).

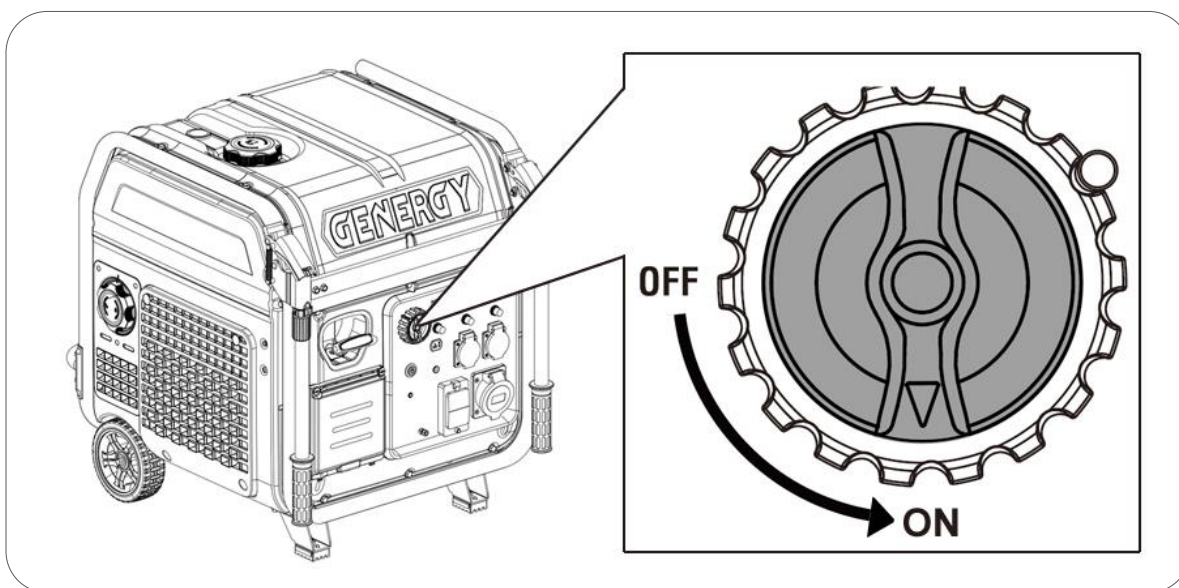
⊘ **AVISO:** Não encha demasiado o depósito de combustível (não superar o nível máximo). Depois de reabastecer, assegurar se o tampão do depósito de combustível está devidamente colocado e fechado.

⊙ **PRECAUÇÃO:** Evitar o contacto com a pele e não respirar os vapores do combustível.

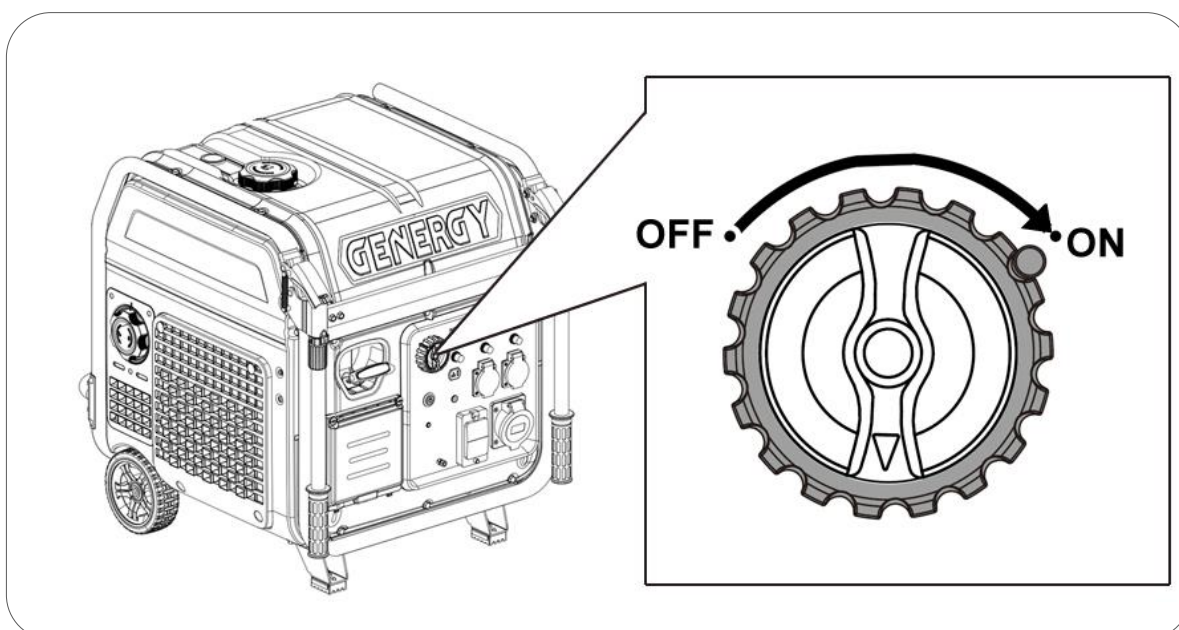
5 Arranque do gerador:

5.1 Arranque elétrico

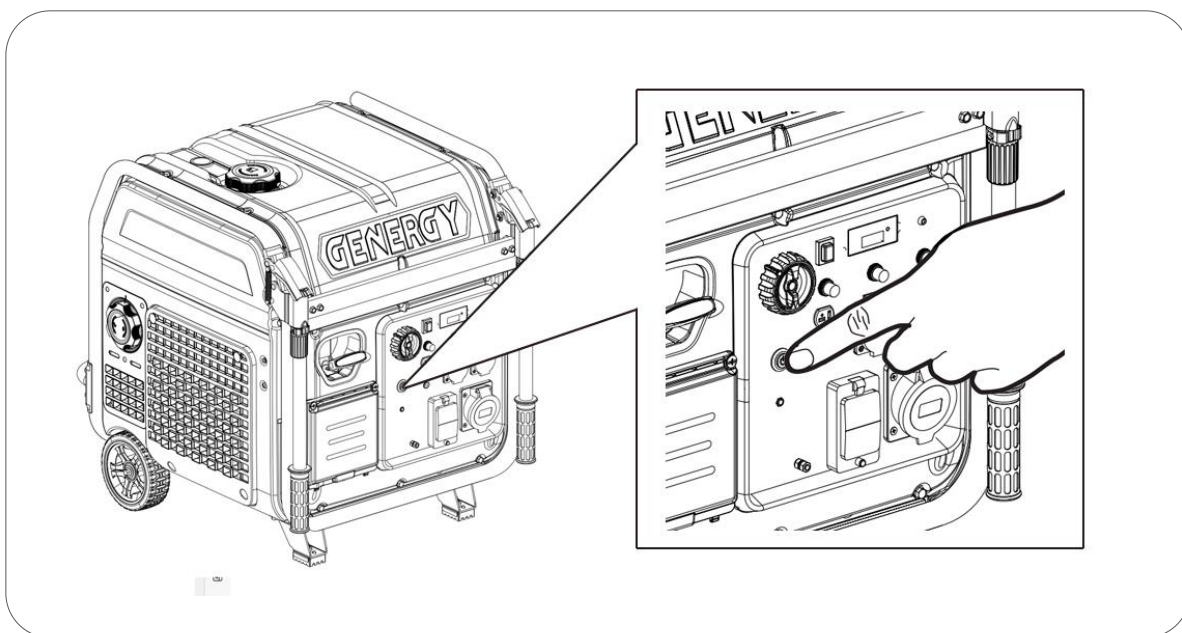
1. Desconectar das tomadas de alimentação todos os equipamentos ou assegurar que o seu interruptor geral está na posição “OFF”. O arranque do gerador tem de ser feito sem equipamentos à carga.
2. Identifique a chave da gasolina (parte interior da roda seletora, marcada em cinza na imagem abaixo). Rode para a posição “ON” (aberto).



3. Rode o seletor OFF/ON (parte exterior da roda seletora, marcada em cinza na imagem abaixo) para a posição “ON”.



4. Pressione o botão "START".



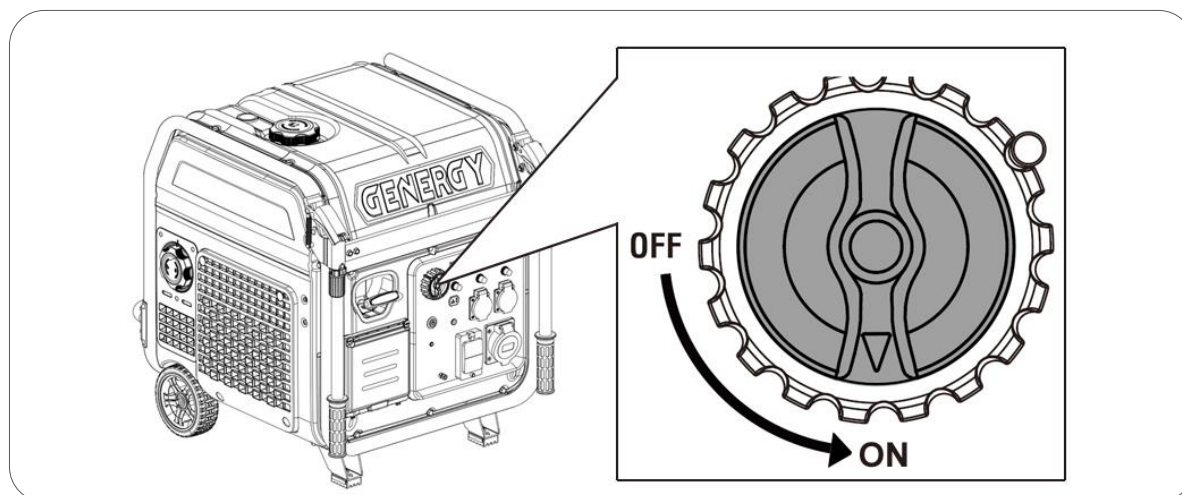
NOTA: Se o gerador não arranca à primeira tentativa, aguarde alguns segundos e volte a tentar.

NOTA: No primeiro arranque do gerador, ou se tem estado muito tempo parado, a carga da bateria pode estar fraca.

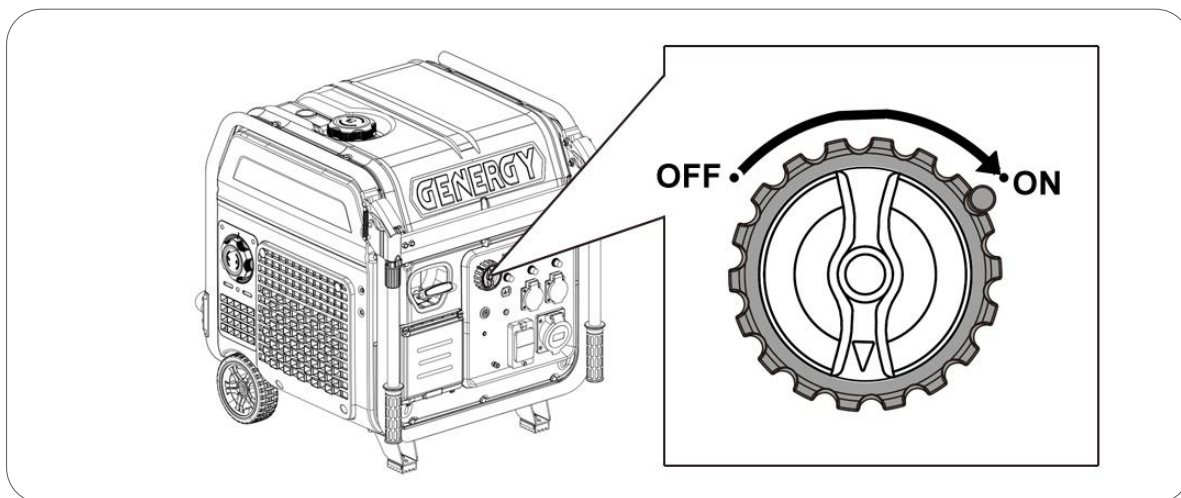
Se for o caso, veja o capítulo "Recarregar a bateria desde o ponto de carga".

5.2 Arranque manual (caso não haja bateria ou esteja com a carga baixa)

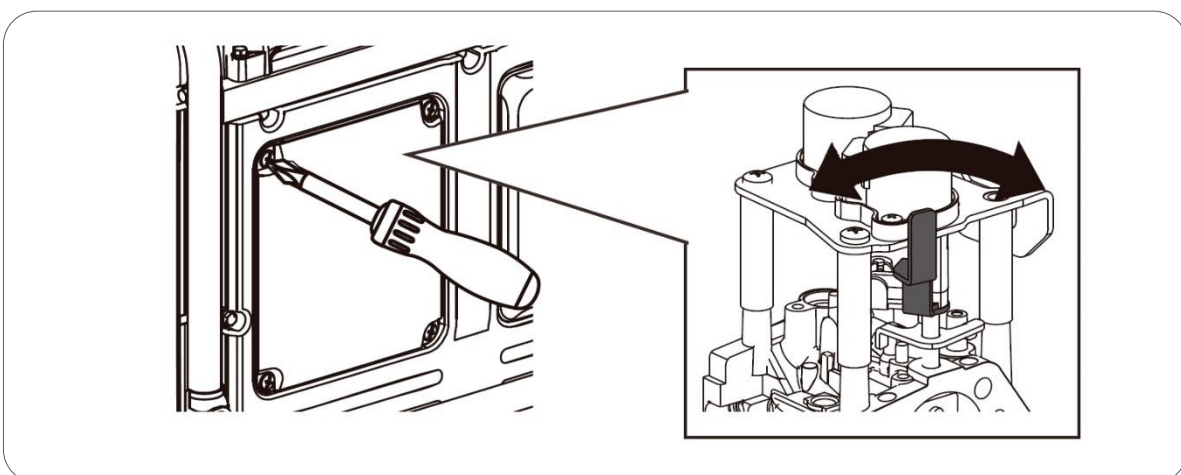
1. Desconectar das tomadas de alimentação todos os equipamentos ou assegurar que o seu interruptor geral está na posição "OFF". O arranque do gerador tem de ser feito sem equipamentos à carga.
2. Identifique a chave da gasolina (parte interior da roda seletora, marcada em cinza na imagem abaixo). Rode para a posição "ON" (aberto)



3. Rode o seletor OFF/ON (parte exterior da roda seletora, marcada em cinza na imagem abaixo) para a posição "ON".



4. Abra a tampa de acesso para poder acionar o estrangulador manual (imagem abaixo). Gire para a direita para um arranque em frio.



5. Suavemente, agarre o punho e puxe a corda de arranque até ao final para estimar o seu curso máximo (e não excedê-lo quando puxar energeticamente). Depois deixe a corda recolher e finalmente, puxe a corda de modo energético para arrancar o motor
6. Logo que o motor tenha arrancado, posicione a patilha do estrangulador totalmente à esquerda.

NOTA: Se o final do curso da corda de arranque é atingido de modo abrupto, a mola de retrocesso do arrancador ou a própria corda podem danificar-se. Tal não está coberto pela garantia.

NOTA: Após puxar a corda, não solte deliberadamente o punho, evitando assim danos na máquina por impacto do mesmo no gerador. Controlar o punho de modo firme até que a corda esteja totalmente recolhida.

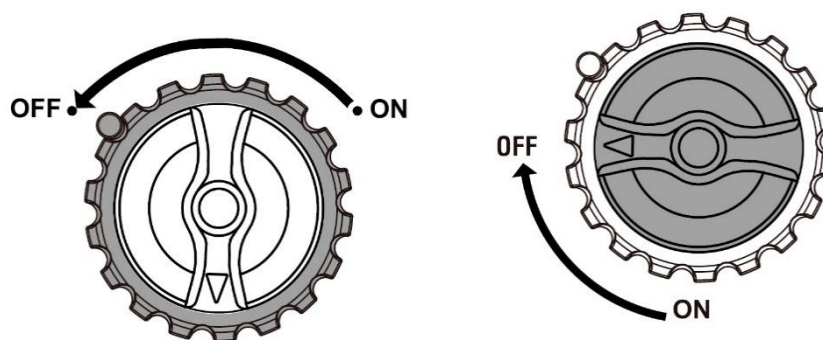
NOTA: Nunca puxar a corda de arranque com o gerador em funcionamento.

NOTA: Não deixar o seletor na posição CHOKE ou noutras posições intermédias enquanto o gerador está em funcionamento, caso contrário pode suceder uma má combustão, funcionamento anormal e avarias.

NOTA: O estrangulador automático não funciona se a bateria estiver muito fraca ou danificada. Neste caso deve-se fechar o estrangulador manualmente e depois puxar a corda de arranque. A bateria é recarregada com o motor em funcionamento, mas também pode recarregá-la com o motor desligado na tomada externa que está no painel, ver o capítulo " Recarregar a bateria desde o ponto de carga"

5.3 Paragem do gerador

1. Desconectar todos os equipamentos conectados ao gerador.
2. Rode o seletor (parte externa marcada em cinza) para a posição "OFF".
3. Rode a válvula de gasolina (parte interna marcada em cinza) para a posição "OFF"

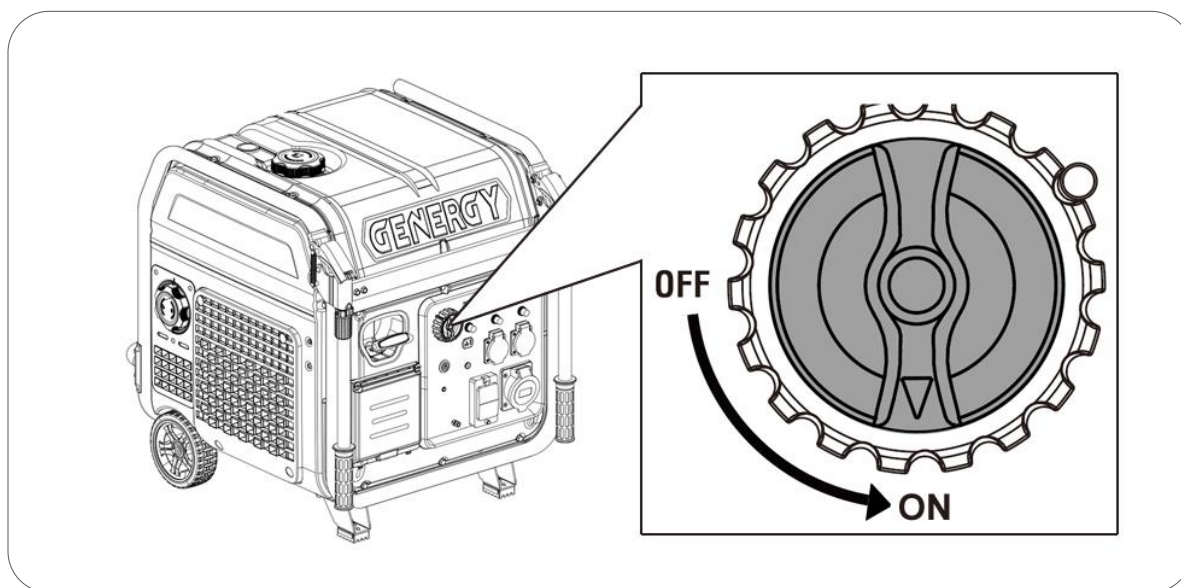


5.4 Arranque por controlo remoto (CRETA SILENT RC)

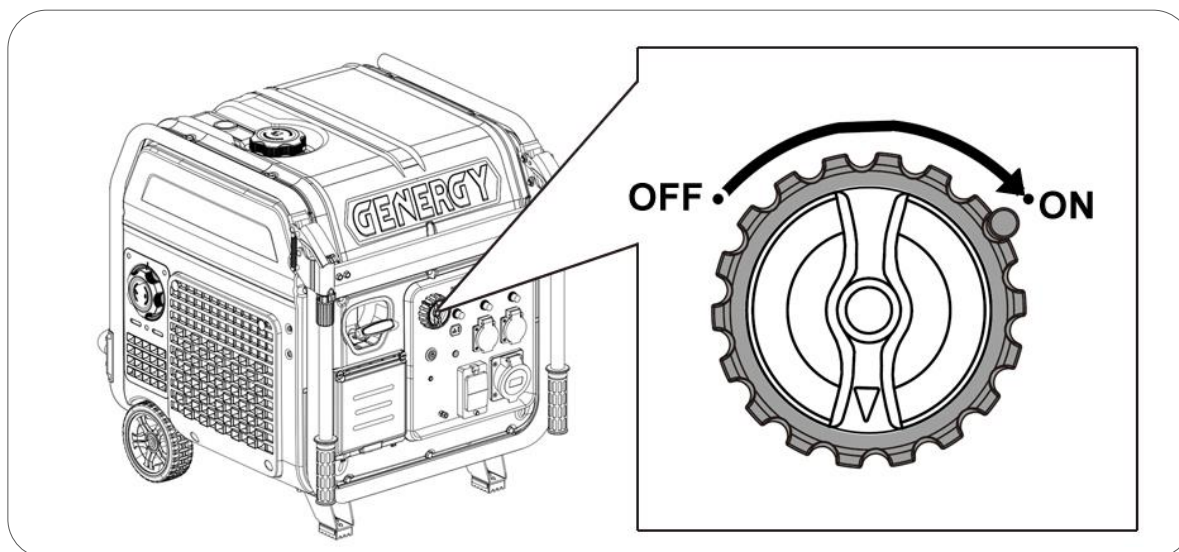
Com o modelo CRETA SILENT RC é possível arrancar remotamente e sem fio até uma distância máxima de 50m, por comando de controlo remoto.

NOTA: O sistema de controlo remoto não está incluído nos modelos CRETA SILENT SOL e CRETA SILENT ATS e não pode ser instalado como opcional.

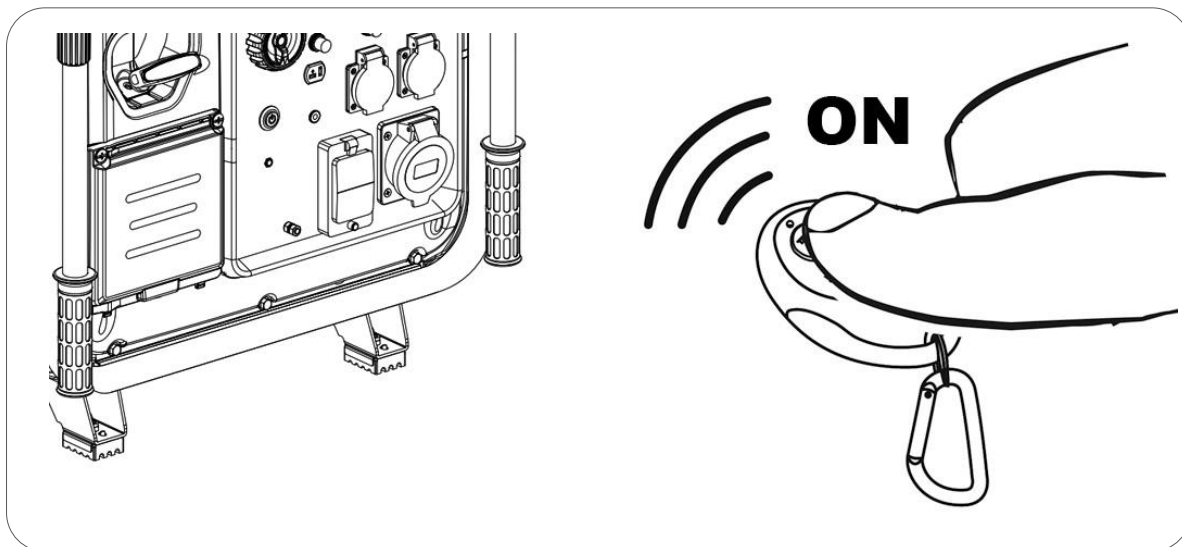
1. Rode a válvula de combustível para a posição "ON".



2. Rode o seletor OFF/ON (parte exterior da roda seletora, marcada em cinza na imagem abaixo) para a posição "ON".



3. No comando de controlo remoto, pressione o botão “ON” **por um segundo**. O gerador iniciará o processo de arranque automático.



NOTA: Não manter pressionado o botão “ON” do controlo remoto. Apenas pressione por um segundo, aproximadamente.

Na primeira tentativa de arranque, se o gerador falhar, automaticamente realizará 6 novas tentativas de arranque. Apenas espere. Se o gerador não arrancar durante as tentativas programadas, pode pressionar novamente o botão “ON” no comando de controlo remoto para realizar outra sequência de arranques. Este gerador tem um estrangulador automático, de modo que não é necessário realizar qualquer posicionamento do estrangulador para facilitar um arranque a frio.

NOTA: O estrangulador automático não funciona se a bateria estiver muito fraca ou danificada. Neste caso deve-se fechar o estrangulador manualmente e depois puxar a corda de arranque. A bateria recarrega com o motor funcionando, mas também pode recarregá-la com o motor desligado na tomada externa do painel, ver o capítulo “Recarregar a bateria desde o ponto de carga”.

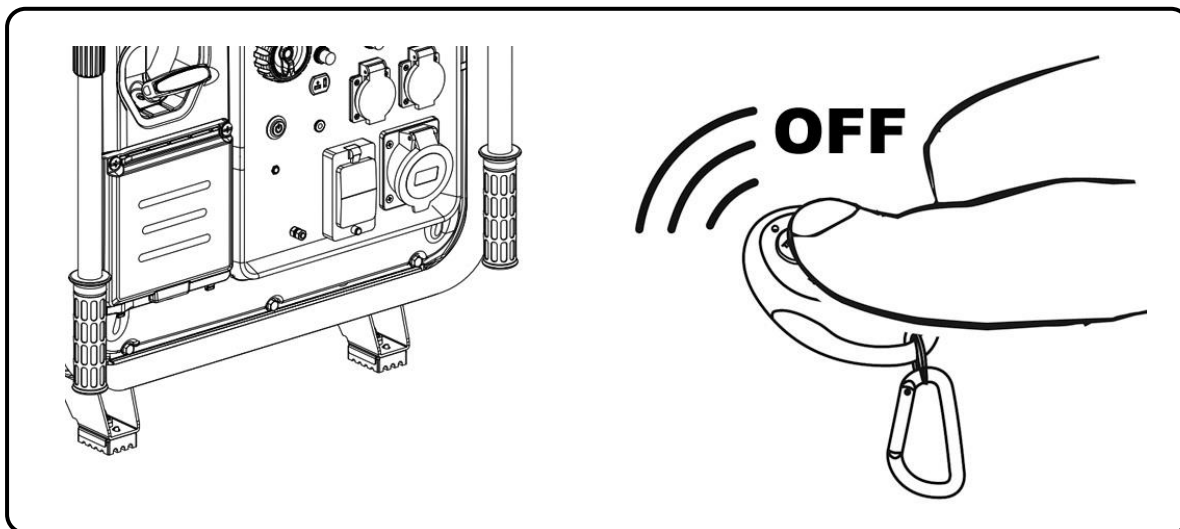
NOTA: Se o gerador permanecer desligado por mais de 24 horas, o gerador entrará automaticamente no modo “SLEEP”. Para reativar o controle remoto, você deve pressionar o botão START no gerador. Esta função evita a descarga da bateria.

NOTA: Se o comando não funciona ou não funciona de modo correto, deve-se substituir a pilha.

Função OPD (Output power delayed). Até 20 segundos após o arranque, o gerador não gera eletricidade para as tomadas. Deste modo, assegura-se que o gerador arranca sem equipamentos em carga.

5.5 Paragem por controlo remoto

No comando de controlo remoto, pressione o botão "OFF".



NOTA: Caso não utilize o gerador nas próximas 12 horas, feche a válvula de gasolina e rode a chave para a posição "OFF". **Esta ação previne a descarga da bateria durante o tempo de inatividade.**

5.6 Sincronizar um novo comando de controlo remoto

NOTA: Para sincronizar um segundo comando de controlo remoto — sem cancelar um já existente — siga os passos de 1 a 5, mais ignore o passo 3. Tenha presente que apenas 2 comandos de controlo remoto podem ser sincronizados ao mesmo tempo.

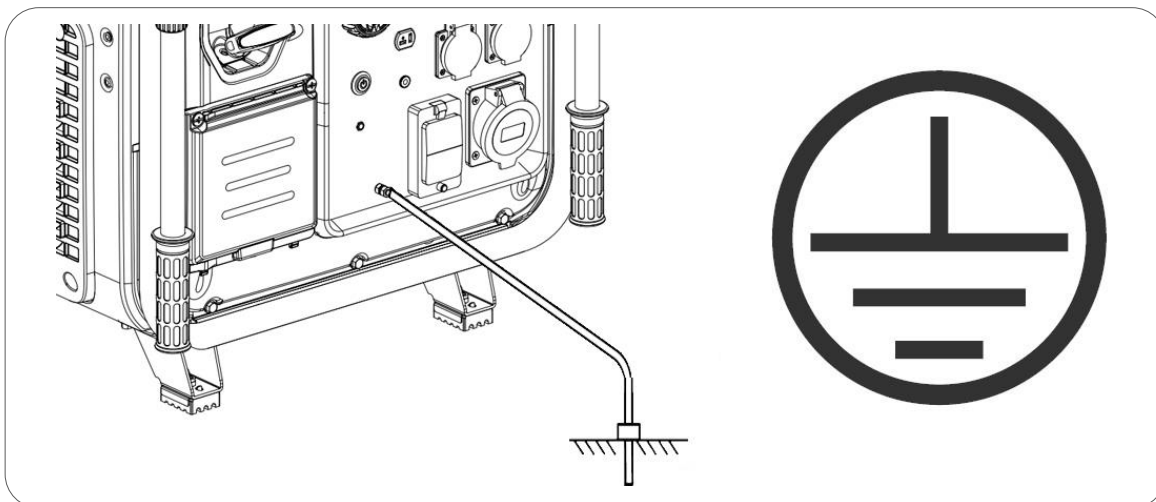
NOTA: Para sincronizar um novo comando de controlo remoto — cancelando um já existente — siga os passos de 1 a 5, incluindo o passo 3.

1. Rode a chave do interruptor geral para a posição "ON".
2. Pressione o botão "PILOT LAMP" por mais de 3 segundos até a luz azul se acender.
3. Pressione o botão "STOP" no botão do controlo remoto por mais de 1 segundo e o "PILOT LAMP" azul piscará.
4. Pressione o botão "START" no controlo remoto por mais de 1 segundo e o "PILOT LAMP" azul piscará.
5. Pressione o botão "PILOT LAMP" e mantenha pressionado até a luz apagar-se, e com isto um novo controlo remoto estará sincronizado.

6 Utilização do gerador e das suas proteções:

Para melhorar o desempenho do motor e prolongar a sua vida, recomenda-se um período de 20 horas de rodagem, sem forçar o motor com cargas que não excedam em 60-70% da capacidade máxima do gerador.

⊘ **AVISO:** Assegure a instalação da ligação Terra. Se tem dúvidas, consulte o seu eletricitista.



⊘ **AVISO:** Nunca conectar diretamente a tomada de saída do gerador a um edifício ou habitação (mesmo quando haja um corte da eletricidade da rede). O retorno da eletricidade da rede chocará com a tensão de saída do gerador e provocará danos graves no mesmo ou até um incêndio.

⊘ **AVISO:** Não conectar o gerador em paralelo com outros geradores, com o objetivo de somar as potências. Os geradores ficariam danificados e haveria um elevado risco de incêndio.

□ **NOTA:** Não conecte uma extensão ao tubo de escape.

□ **NOTA:** Quando se exige a utilização de um cabo de extensão, tem de se assegurar a sua boa qualidade e uma espessura adequada (consulte o seu eletricitista).

□ **NOTA:** Os equipamentos que têm um motor elétrico (compressores, bombas de água, serras, rebarbadoras, etc.) requerem até 3 vezes mais potência durante o seu arranque. Por exemplo, uma bomba de água de 500W requer 1500W para realizar o seu arranque. Portanto, confirme sempre as potências nominais dos equipamentos a conectar e assegure que não superam a potência máxima produzida pelo gerador, segundo a nossa recomendação.

⊘ **AVISO:** Antes de conectar os equipamentos ao gerador, confirmar se todos estão em boas condições de funcionamento.

Se um equipamento funciona de forma anormal, lento ou se desliga espontaneamente, pare de imediato o gerador e desconecte o equipamento.

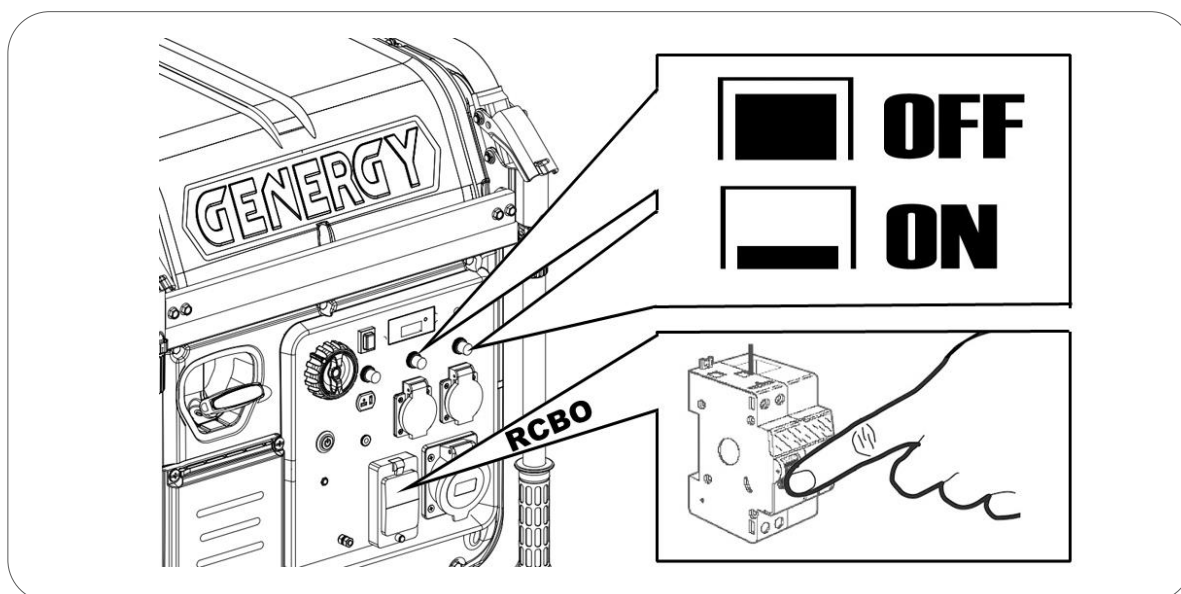
6.1 Proteção de tomadas

O gerador tem disjuntores que protegem as tomadas contra cargas excessivas. No caso de um pico de corrente acontecer numa tomada, o disjuntor irá cortar a corrente para evitar um sobreaquecimento ou fogo numa tomada ou ficha conectada.

- Uma tomada de 16A permite uma corrente máxima de 3680W (230Vx16A).
- Uma tomada de 32A permite uma corrente máxima de 7360W (230Vx32A).

Em caso de sobrecarga, em primeiro lugar, desconectar os equipamentos conectados.

Logo que os equipamentos estejam desconectados, reinicie a proteção contra sobrecarga movendo-a para a posição “ON”, e assim restaurar a saída de corrente.



Se a proteção contra sobrecarga saltar quando os equipamentos estão a ser conectados, desista de conectá-los. O equipamento pode ter algum problema ou pode até exceder a capacidade máxima da tomada ou mesmo do próprio gerador.

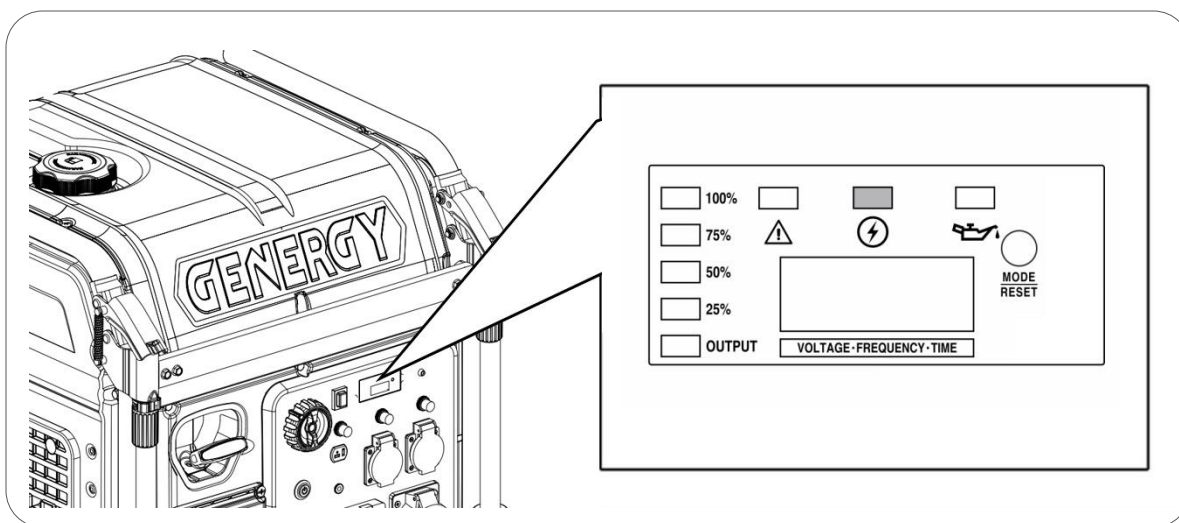
Lembre-se que muitos equipamentos necessitam de um consumo adicional no arranque. Os equipamentos que têm um motor elétrico (compressores, bombas de água, serras, rebarbadoras ou outros) requerem até 3 vezes mais potência no seu arranque. Por exemplo, uma bomba de água de 1000W requer 3000W para realizar o seu arranque, de modo que precisaremos de um gerador de pelo menos 3000W. Em certos refrigeradores estes cálculos podem ter resultados superiores.

O gerador tem um diferencial de 30mA (RCBO) que protege contra fugas de corrente e também as pessoas de descargas. O diferencial também protege contra sobrecarga. Em caso de salto do RCBO, verifique possíveis problemas no circuito elétrico, e uma vez resolvidos, restaurar a saída. O gerador necessita de uma correta ligação à terra independente para que o RCBO funcione corretamente.

6.2 Painel de controlo digital

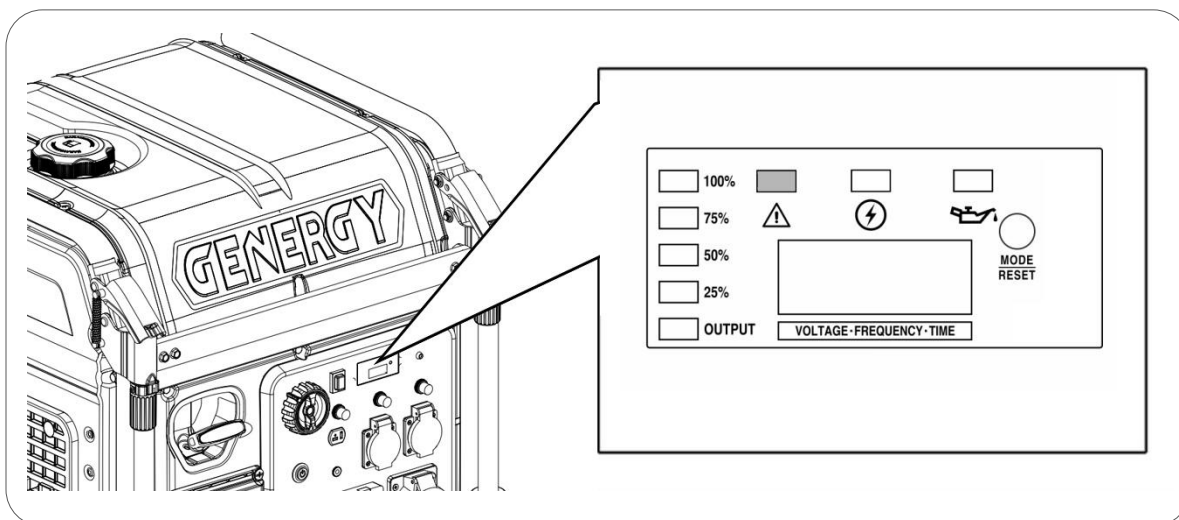
Piloto central: Funcionamento correto

Após o gerador arrancar, liga-se e significa que o seu funcionamento é normal.



Piloto esquerdo: Gerador em sobrecarga

Se o gerador está sobrecarregado, o indicador liga-se. Neste caso, o gerador continuará em funcionamento, mas a saída de eletricidade será cortada.



Em caso de sobrecarga, siga os seguintes passos:

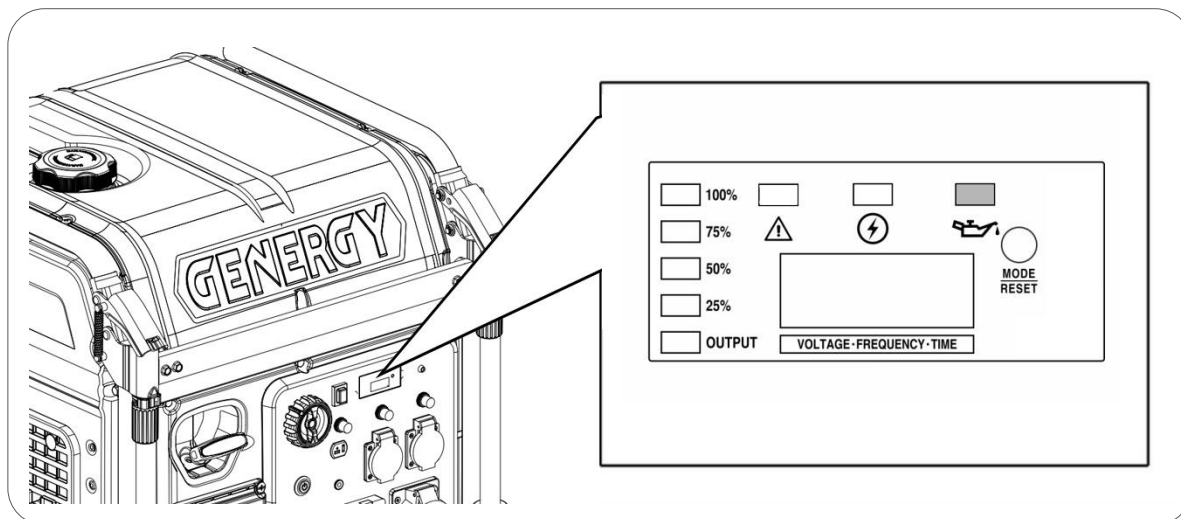
1. Desconectar os equipamentos do gerador.
2. Pressionar o botão "RESET", de acordo com a imagem acima.
3. Conectar um outro equipamento que tenha um consumo menor do que a potência nominal gerada pelo gerador.

NOTA: Um filtro de ar sujo pode reduzir a potência máxima do gerador, ativando o alarme de sobrecarga mesmo com consumos inferiores à potência nominal gerada pelo gerador.

Piloto direito: Falta de óleo

O sistema de alarme por falta de óleo está concebido para evitar danos no motor, provocados por quantidade insuficiente de óleo no motor.

Este indicador liga-se com um nível baixo de óleo, e consequentemente, o motor desliga-se por segurança. O motor apenas volta a arrancar quando o nível de óleo for reposto.

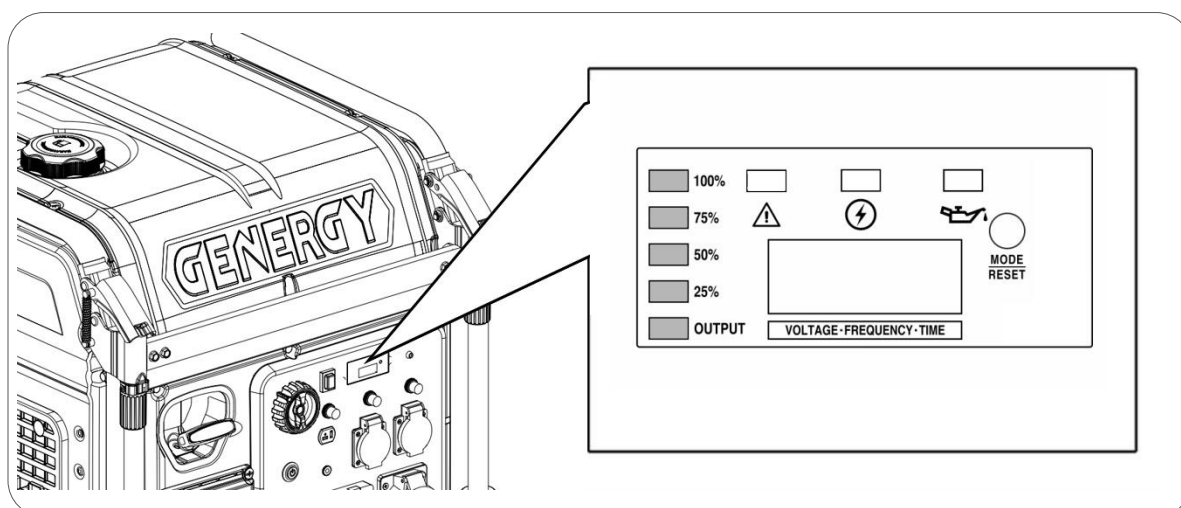


NOTA: A proteção por falta de óleo deve ser considerada uma segurança extra. O utilizador é inteiramente responsável pela verificação do nível de óleo antes de cada utilização, tal como se indica e recomenda neste manual. A probabilidade do sistema de alarme falhar é muito baixa, mas se falhar, os danos no motor serão muito significativos. Assim, a responsabilidade de uma eventual avaria por falta de óleo é única e exclusivamente do utilizador. A sua reparação não é considerada ao abrigo da garantia.

NOTA: O sistema de alarme só atua pela insuficiência de óleo no motor, não protegendo em casos de utilização de óleo inadequado ou de óleo em más condições.

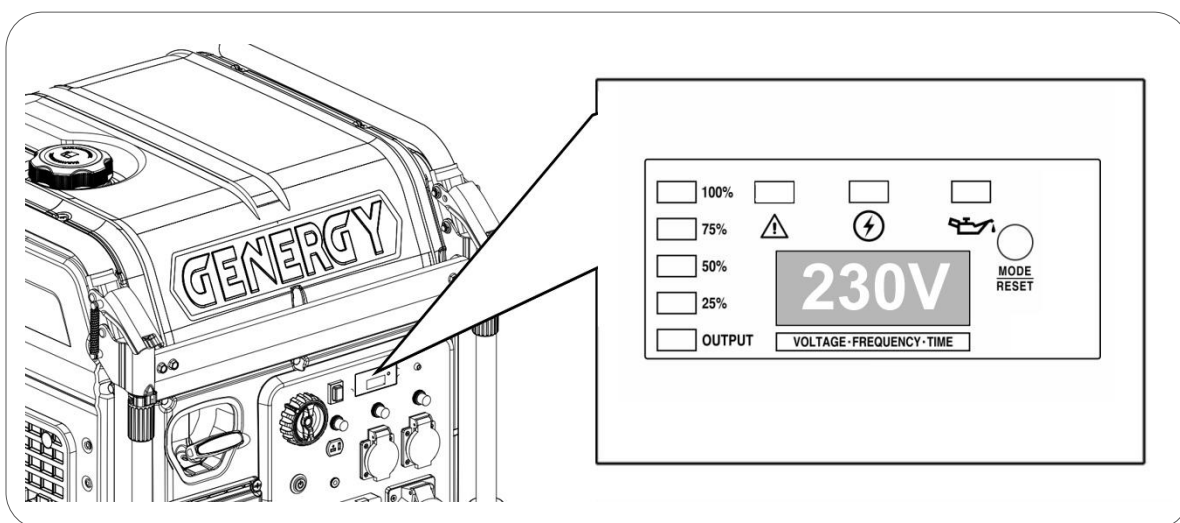
Barra lateral esquerda: Indicador de potência de saída do gerador

Mostra por aproximação, o nível de carga usada do gerador em relação à sua capacidade total. Função meramente indicativa.



Visor central: Indicador de parâmetros

Durante o funcionamento, o visor mostra a Voltagem, Frequência e Horas de trabalho. Para visualizar cada parâmetro basta pressionar o botão “RESET”.



6.3 Modificação do carburador para funcionamento a grande altitude

A grande altitude, a mistura normal entre ar e combustível no carburador será demasiado rica. O rendimento é reduzido e o consumo de combustível é aumentado. Uma mistura muito rica suja também a vela e dificulta o arranque do motor. Se um gerador funciona sempre a uma altitude acima dos 1500 metros deve contactar um Serviço Autorizado Genenergy para modificar o carburador (este serviço não está coberto pela garantia e é sujeito a orçamentação)

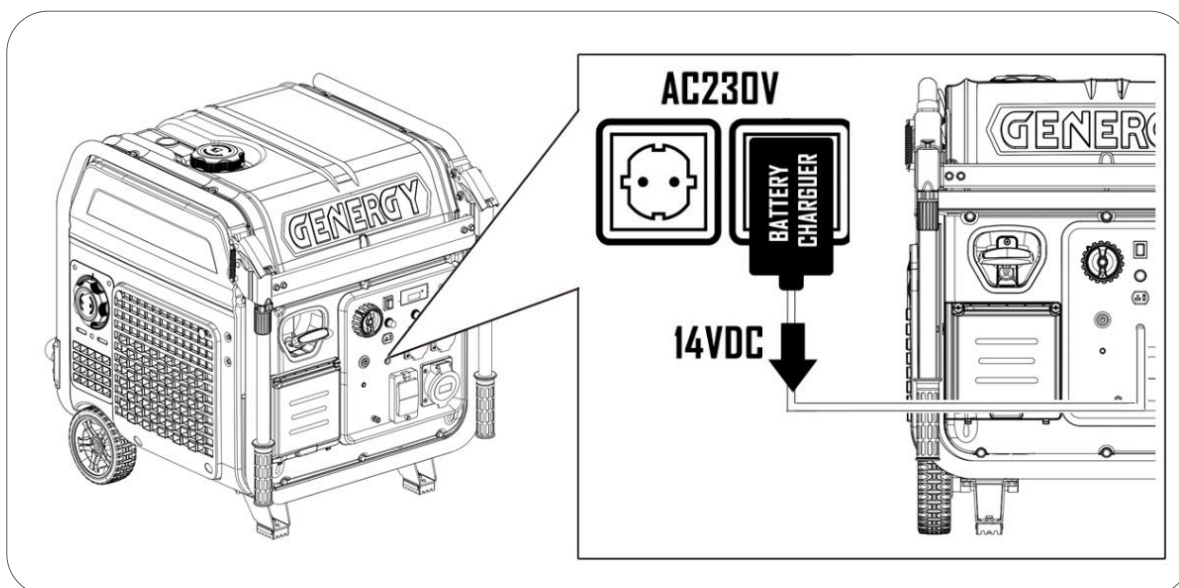
Tenha presente que mesmo com a modificações do carburador, a potência irá degradar-se a uma taxa de 3.5% a cada 300m de altitude.

NOTA: Se o carburador é modificado para funcionar a grande altitude, a mistura entre ar e combustível será demasiado pobre se funcionar a baixas altitudes. O funcionamento de um gerador modificado a baixa altitude pode causar sobreaquecimento e consequente dano do motor. Daí, é necessário modificar o carburador para a sua configuração original.

6.4 Recarregar a bateria desde o ponto de carga

Os modelos CRETA SILENT SOL e CRETA SILENT RC têm um ponto de carga (CHARGER PORT) para recarregar a bateria do gerador. O modelo CRETA SILENT ATS não tem, pois a bateria do gerador é recarregada a partir do quadro ATS através de um conector de 7 fios.

Conecte o carregador de bateria (incluído com a máquina) a uma tomada de 230V e à tomada de ponto de carga (CHARGER PORT) no painel de controlo do gerador. O carregamento deverá tardar 4 horas.



NOTA: Não utilize carregadores ou outras tomadas diferentes das originais. Se precisar substituir o carregador, compre um original em um distribuidor GENERGY.

Caso não tenha uma tomada de 230V, pode arrancar o gerador manualmente e deixá-lo a funcionar por algumas horas. A bateria também recarrega a partir do motor.

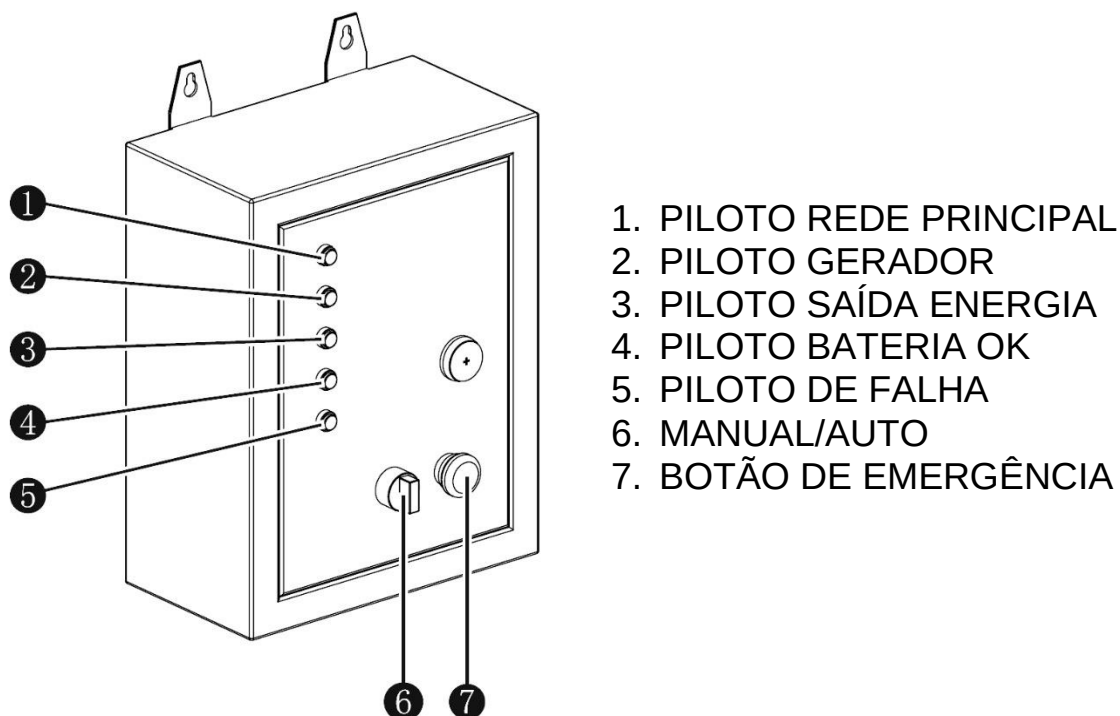
Após o carregamento, se a bateria continua sem funcionar, leve a bateria a um serviço técnico para verificação, pois poderá não estar em condições e a necessitar de ser substituída.

7 Modo falha de rede (CRETA SILENT ATS):

7.1 Introdução

O sistema ATS (interruptor automático de transferência) permite-nos controlar as funções de arranque e de paragem do gerador, bem como a comutação entre a eletricidade produzida pelo gerador e a eletricidade da rede. A comunicação entre o quadro ATS e o gerador é feita através de um cabo de 7 linhas. O utilizador pode decidir se pretende trabalhar em modo automático ou manual, e seleccionar também entre a saída do gerador ou a saída da rede.

7.2 Os componentes do painel do quadro ATS

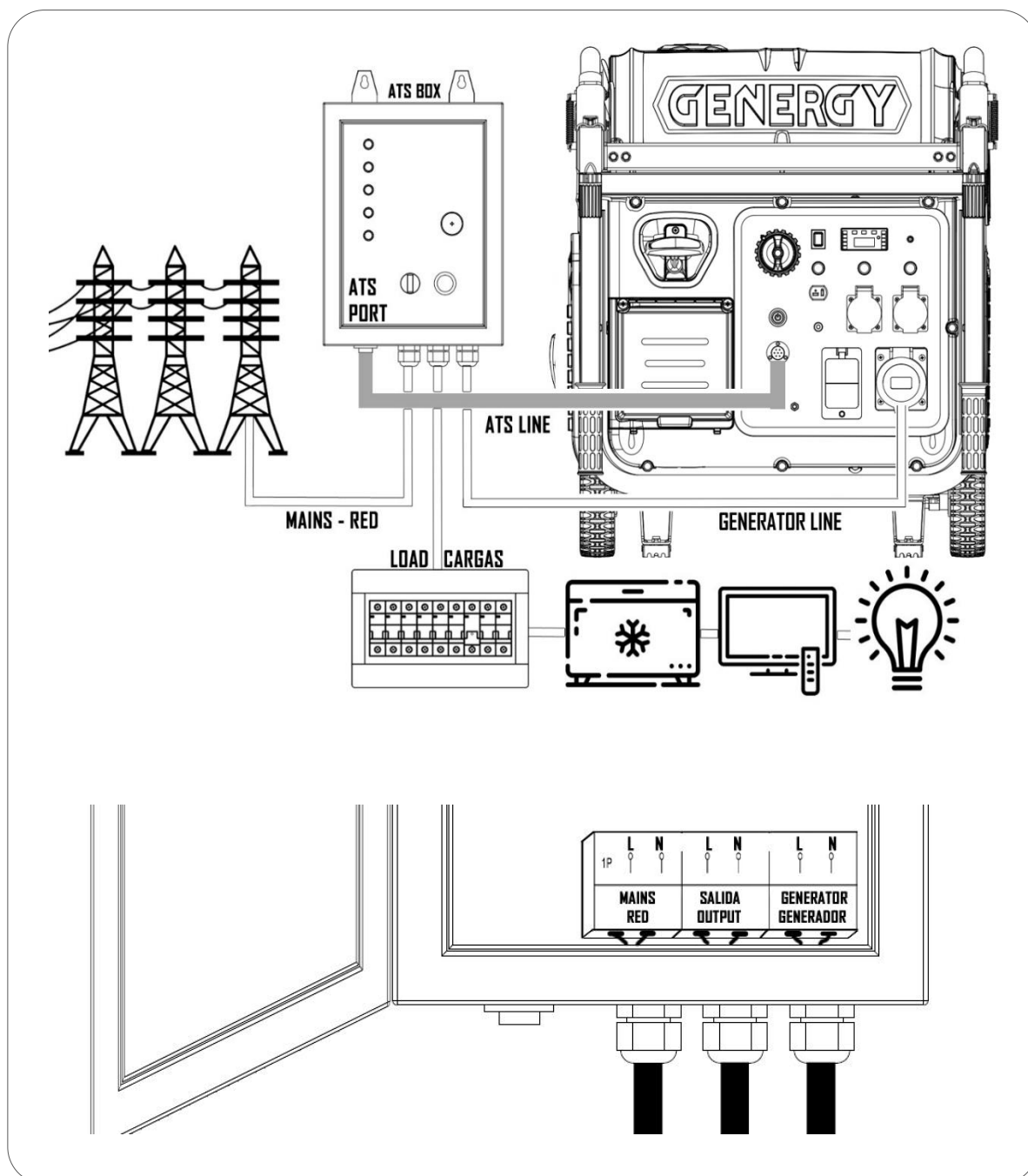


7.3 Parâmetros elétricos

Tensão de alimentação: DC10-15V
Voltagem de entrada: AC220-240V
Frequência nominal: 50-60Hz
Potência máxima: 10000W
Intensidade máxima: 45A
Ligação entre quadro ATS e gerador

Português

NOTA: O esquema abaixo é simplesmente para referência e destina-se apenas a ajudar à interpretação do seu funcionamento. O utilizador é exclusivamente responsável pela sua instalação, a qual tem de ser feita de acordo com as regulações elétricas de cada país ou região.



 **NOTA:** O quadro ATS pode apenas ser conectado ao gerador CRETA SILENT ATS. Não pode ser conectado às versões SILENT SOL-RC ou a qualquer outro modelo.

7.5 Princípio de funcionamento

O quadro ATS tem dois modos de funcionamento, manual e automático:

Modo manual: quando o quadro ATS está em modo manual, o gerador não é controlado automaticamente.

- Se, ao mesmo tempo, há eletricidade na rede e no gerador, a corrente de saída de energia será do gerador.
- Se há apenas eletricidade do gerador, a corrente de saída de energia será do gerador.
- Se há apenas eletricidade da rede, a corrente de saída de energia será da rede.

Modo automático: o quadro ATS será controlado pelo gerador. Sempre que haja eletricidade na rede, a prioridade é a rede e o gerador mantém-se em repouso. Quando haja um corte da eletricidade na rede, o gerador arrancará automaticamente e fornecerá energia.

No caso de uma falha de eletricidade na rede, o gerador tem 40 segundos para arrancar com um máximo de 6 tentativas durante esse período de tempo. Se o motor não arrancar durante esses 40 segundos, cairá em modo erro e o **PILOTO DE FALHA** liga-se por um minuto.

A paragem do gerador tem também um limite definido de 10 segundos. Se o gerador não para durante esse tempo, o sistema interpretará que há uma falha na paragem e o **PILOTO DE FALHA** ligar-se-á.

O **PILOTO DE FALHA** é apenas informativo, não tem efeitos sobre o funcionamento.

Quando a eletricidade da rede está a alimentar os equipamentos, simultaneamente está a carregar a bateria do gerador com DC 14.4V. Deste modo, o nível ótimo de carga da bateria do gerador está garantido, mesmo que o gerador esteja em repouso por longos períodos de tempo.

7.6 Funcionamento

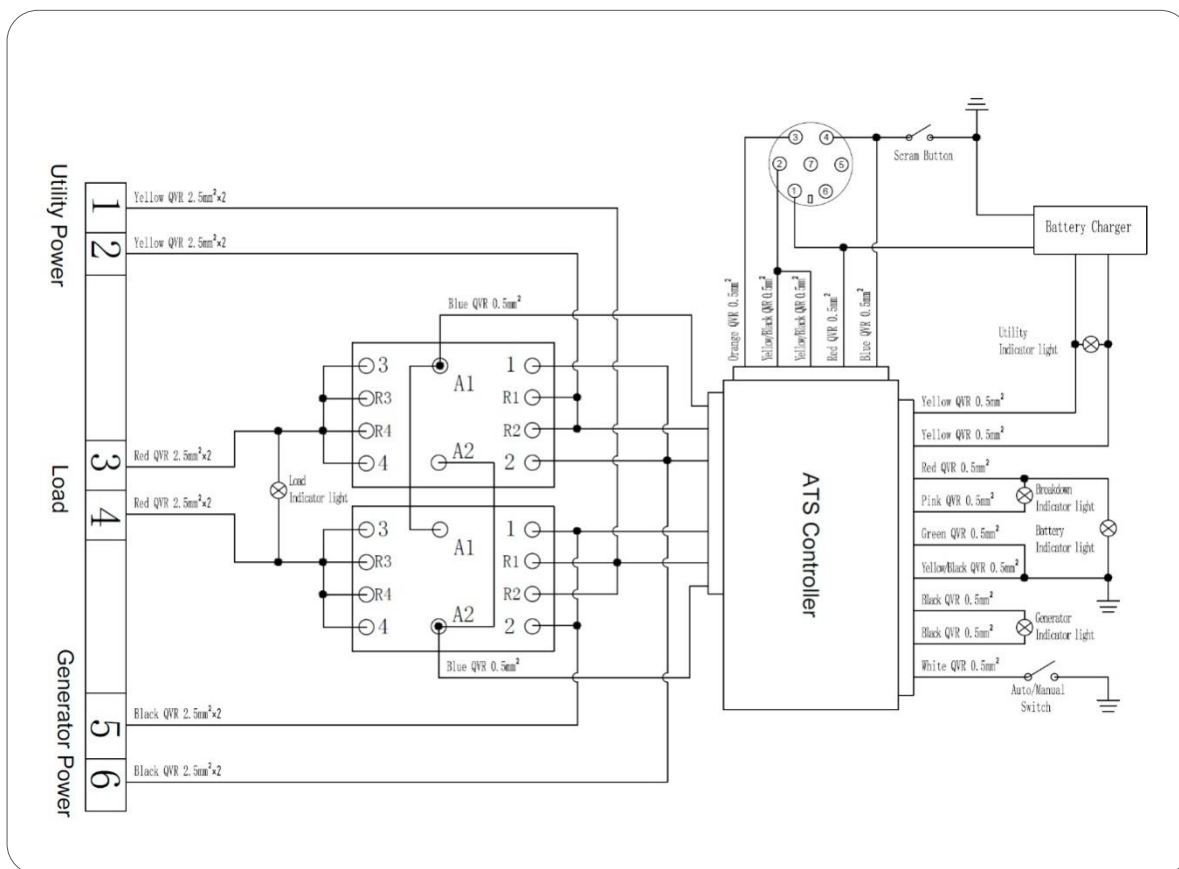
Modo manual:

1. Rode e solte o botão de segurança.
2. No seletor (6), selecione o modo manual.
3. Arranque o gerador.

Modo automático:

1. Rode e solte o botão de segurança
2. No seletor (6), selecione o modo automático.

7.7 Diagrama



Acerca do combustível:

NOTA: Assegurar que o gerador funciona a cada 2 meses, pelo menos. Caso contrário, realize um arranque manual e mantenha o gerador em funcionamento por alguns minutos para garantir que o combustível é renovado no circuito de admissão.

NOTA: Se o gerador não é utilizado ou se é usado poucas vezes, assegure que a mesma gasolina não permanece no depósito por mais de um ano. Caso contrário, substitua-a.

NOTA: Se tem consciência de que o gerador não irá funcionar por longos períodos de tempo, opte por encher o depósito completamente. Em contacto com o oxigénio, a gasolina acelera a sua degradação. Se o depósito estiver completamente cheio, a degradação será mais lenta. Um estabilizador de gasolina também pode ser adicionado para retardar a sua degradação.

NOTA: Em nenhum caso, a GENERGY será responsável por danos pessoais ou materiais que possam surgir por falta de fornecimento de energia devido a uma falha do gerador.

Caso tenha questões, contacte-nos através de spv@sg-group.es.

8 Modo automático fotovoltaico (CRETA SILENT SOL):

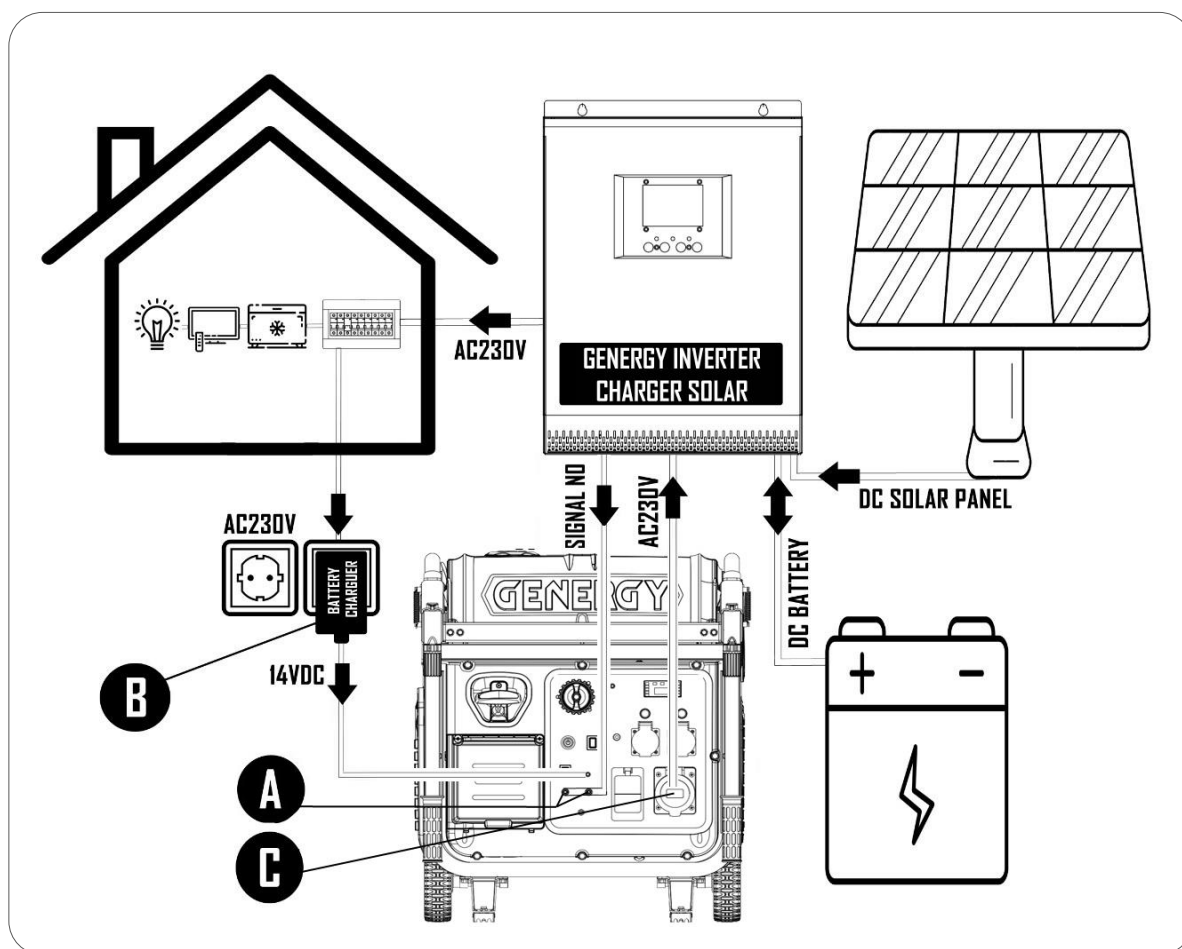
8.1 Introdução

O modelo CRETA SILENT SOL foi concebido especificamente para apoiar um sistema solar em casos excepcionais, quando a energia solar não seja suficiente. O gerador está pronto para arrancar e apoiar o sistemas fotovoltaico, bem como parar quando o seu apoio já não é mais necessário. O arranque e a paragem do gerador é realizada por um contacto NA (Normalmente Aberto) enviado pelo controlador solar.

8.2 Instalação

⚡ PERIGO: A ligação do gerador ao sistema solar tem de ser apenas realizado por um técnico qualificado em sistemas fotovoltaicos, porque é necessário configurar os parâmetros de arranque e paragem do gerador no controlador solar.

🗨️ NOTA: O esquema abaixo é simplesmente para referência e destina-se apenas a ajudar à interpretação do seu funcionamento. O utilizador é exclusivamente responsável pela sua instalação, a qual tem de ser feita de acordo com as regulações elétricas de cada país ou região.



A Contacto NA (Normalmente Aberto) para arranque e paragem do gerador:

- **Contacto aberto:** gerador em repouso
- **Contacto fechado:** gerador arranca e mantém-se em funcionamento até o contacto reabrir.

Por favor, tenha presente de que nem todos os controladores solares estão preparados para trabalhar com um gerador. Verifique com o seu técnico de sistemas solares ou com o fornecedor do controlador.

Sequência de arranque: quando o contacto do gerador fecha, a tentativa de arranque inicia-se. Caso não seja bem sucedido na primeira tentativa, novas tentativas serão realizadas até um máximo de cinco. Se o gerador falhar todas as cinco tentativas pré-programadas, este irá cair em modo de erro.

B Apoio a bateria do gerador: o gerador tem um ponto de carga no painel de controlo para recarregar ou manter a carga da bateria do gerador. Conecte o carregador fornecido a uma tomada de rede de 230V e a sua saída de 14V DC ao ponto de carga no painel de controlo.

 **NOTA:** Não utilizar um carregador diferente do original. Caso tenha de substituir o carregador original, compre um original GENERGY.

C Utilize a tomada de 32A como fonte de alimentação do controlador: Esta tomada de 32A fornece com a capacidade máxima do gerador.

 **NOTA:** Não utilize uma das duas tomadas de 16A para esse propósito, porque a eletricidade de saída estaria limitada a 16A (3680W).

Acerca do combustível:

 **NOTA:** Assegurar que o gerador funciona a cada 2 meses, pelo menos. Caso contrário, realize um arranque manual e mantenha o gerador em funcionamento por alguns minutos para garantir que o combustível é renovado no circuito de admissão.

 **NOTA:** Se o gerador não é utilizado ou se é usado poucas vezes, assegure que a mesma gasolina não permanece no depósito por mais de um ano. Caso contrário, substitua-a.

 **NOTA:** Se tem consciência de que o gerador não irá funcionar por longos períodos de tempo, opte por encher o depósito completamente. Em contacto com o oxigénio, a gasolina acelera a sua degradação. Se o depósito estiver completamente cheio, a degradação será mais lenta. Um estabilizador de gasolina também pode ser adicionado para retardar a sua degradação.

 **NOTA:** Em nenhum caso, a GENERGY será responsável por danos pessoais ou materiais que possam surgir por falta de fornecimento de energia devido a uma falha do gerador.

Caso tenha questões, contacte-nos através de spv@sg-group.es.

9 Manutenção:

O objetivo do plano de manutenção é garantir que o gerador se mantém em bom estado de funcionamento e que alcança o máximo da sua vida útil.



PERIGO: Desligar o motor, antes de realizar qualquer tipo de manutenção. Em caso de necessidade de arranque do motor para alguma verificação, garantir que a área está bem ventilada. Os gases do escape contêm monóxido de carbono, o qual é venenoso para o utilizador.



NOTA: Aplicar apenas peças originais GENERGY ou na sua falta, componentes de qualidade comprovada.

Plano de manutenção:

SERVIÇO	FASES DE MANUTENÇÃO
Óleo do motor	Verificar o nível de óleo antes de cada utilização. Após 20 horas de rodagem, deve ser feita a primeira muda de óleo. A cada 100 horas de utilização, fazer novas mudanças de óleo.
Filtro de ar	A cada 50 horas, verificar e limpar. No máximo de 250 horas ou antes se está deteriorado, substituir.
Vela de ignição	A cada 50 horas, limpar e ajustar o eletrodo. No máximo de 250 horas ou antes se está deteriorado, substituir.
Válvulas do motor*	A cada 500 horas, ajustar.*
Câmara de combustão *	A cada 500 horas, limpar*
Depósito de combustível*	A cada 500 horas, limpar*
Tubo de combustível*	A cada 2 anos ou antes se está deteriorado, substituir.*



NOTA: Se utilizar o gerador em locais com muito pó ou com temperaturas muito altas, faça uma manutenção mais frequente.



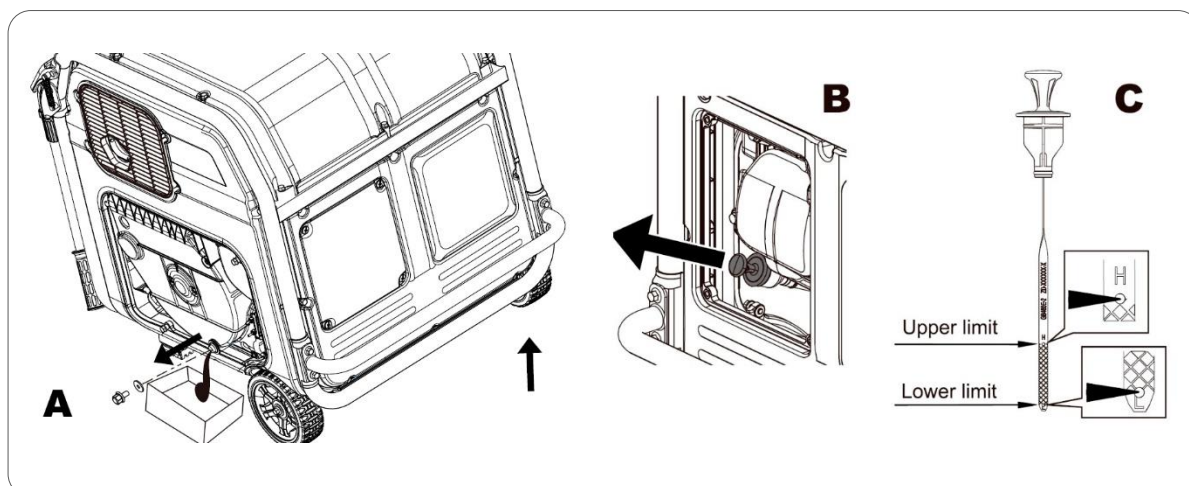
NOTA: Todos os serviços marcados com um asterisco (*) devem ser realizados pelo Serviço GENERGY ou por um serviço qualificado. Deve guardar o comprovativo de trabalho realizado pela oficina.



NOTA: A falta de cumprimento do plano de manutenção reduzirá a vida útil do gerador, e consequentemente potenciará eventuais avarias não cobertas pela garantia. Verificado o incumprimento de um ou mais serviços do plano de manutenção, a cobertura por garantia não se aplica, salvo por autorização do Serviço GENERGY ou Serviço Autorizado GENERGY.

9.1 Mudança de óleo

1. Durante 5 ou 10 minutos manter o motor a trabalhar, para que o óleo possa alcançar alguma temperatura e diminuir a sua viscosidade (mais líquido). Deste modo, será mais fácil extraí-lo por completo.
2. Por baixo do orifício de drenagem de óleo, colocar um recipiente adequado para recolha do óleo usado, segundo a imagem A.
3. Desenroscar o parafuso de drenagem do óleo, rodando em sentido contrário ao dos ponteiros do relógio. Preserve o parafuso e a sua junta.
4. Retirar o tampão com o nível de óleo, para que o motor receba ar e assim permita uma expulsão do óleo mais rápida, segundo a imagem B.
5. Suavemente, faça rodar o motor puxando a corda de arranque. Assim, o óleo alojado nas partes móveis do motor também pode ser extraído.



6. Uma vez extraído todo o óleo do motor, colocar novamente o parafuso de drenagem com a sua junta. Em caso de derrames, estes têm de ser limpos.
7. Reabastecer com óleo recomendado segundo as imagens B e C. Para mais informações veja o capítulo “Colocação e verificação do óleo” deste manual.

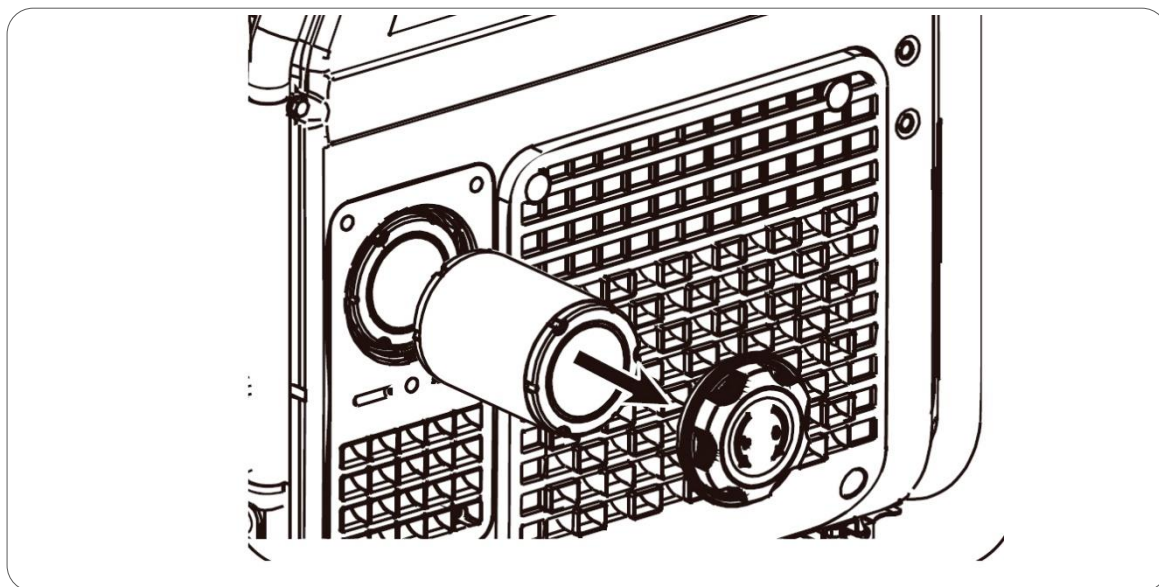
9.2 Manutenção do filtro do ar

NOTA: A sujidade no filtro de ar reduz o fluxo de ar no carburador, limitando a sua combustão e promovendo sérios problemas no motor. Limpar o filtro de ar com regularidade, segundo o plano de manutenção deste manual. Em ambientes com muito pó, a limpeza dos filtros deve ser mais frequente.

NOTA: O gerador nunca deve trabalhar sem o filtro de ar, caso contrário, teremos um rápido desgaste do motor.

 **AVISO:** Não utilize gasolina ou dissolventes com baixo ponto de ignição para limpeza do filtro. Em certas condições, são inflamáveis e explosivos.

1. Rode a tampa do filtro e retire-a.
2. Retire o cartucho filtrante.



3. Limpar o filtro de ar utilizando uma solução de água e sabão. Deixar secar por completo.
4. Suavemente, bata no filtro interior de papel de modo a remover a capa de sujeira. Substitua se estiver muito sujo ou se nota que o motor perde força ou trabalha anormalmente.

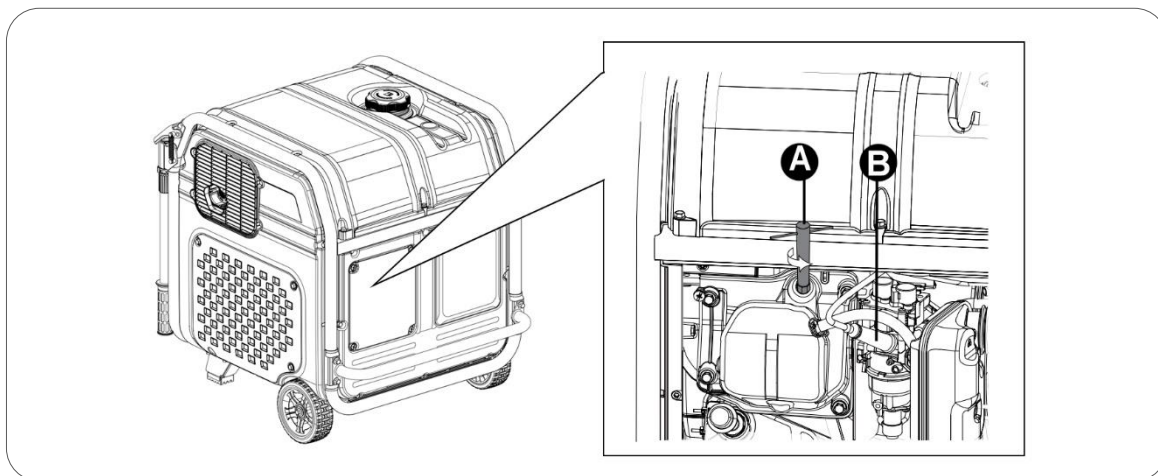
 **NOTA:** O filtro de ar é uma parte essencial que afeta o rendimento do gerador e as suas emissões. Qualquer alteração é proibida.

Colocar um gerador em funcionamento sem filtro de ar ou instalado de modo incorreto causará um desgaste severo e graves danos no motor. Em todos esses casos, a garantia total da máquina está anulada.

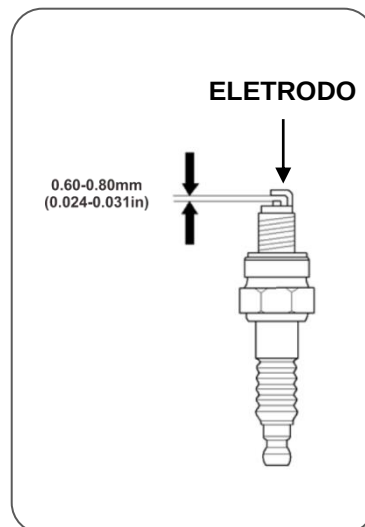
9.3 Manutenção da vela de ignição

Velas recomendadas: **TORCH** F6RTC, **NGK** BP7ES, **BOSCH** WR3C.

1. Desconecte o tampão da vela (capuchón) (B), puxando para fora.
2. Com uma chave de velas (A) desenrosque e extraia a vela do motor (rodar em sentido contrário ao dos ponteiros do relógio).



3. Visualmente, inspecione a vela. Se o isolamento da vela estiver rachado ou lascado, substitua por uma nova. Para limpar sujidades no eletrodo utilizar uma escova de arame muito fino.
4. Verificar a distância do eletrodo com um medidor. A distância deverá estar entre 0.6 e 0.8mm. Caso não esteja conforme, ajuste-a cuidadosamente.
5. Recolocar a vela com muito cuidado, iniciando a sua roscagem manualmente para evitar danos na rosca. Com a vela rosca totalmente faça um aperto final com a chave de velas, segundo as seguintes recomendações:
 - Velas novas: 1/2 volta
 - Velas usadas: 1/8 a 1/4 de volta
6. Voltar a colocar o tampão da vela.



NOTA: A vela deve estar apertada de modo firme. Uma vela mal apertada ou ajustada pode aquecer e até danificar o motor. Por outro lado, um aperto excessivo pode danificar a vela e danificar ainda a rosca da cabeça do motor.

10 Transporte e armazenagem:

10.1 Transporte do gerador

Para evitar derrames de combustível durante o transporte do gerador deve manter sempre a válvula de combustível fechada e o gerador bem amarrado (para que não se mova).

NOTA: O gerador tem de ser transportado na sua posição natural de trabalho. Nunca transportar o gerador invertido vertical ou horizontalmente em relação à sua posição base.

PERIGO: Nunca colocar o gerador em funcionamento dentro de um veículo de transporte. O gerador deve ser utilizado apenas com boas condições de ventilação.

PERIGO: Quando estacionado e com o gerador no seu interior, o veículo de transporte não deve estar demasiado tempo ao sol. O aumento excessivo da temperatura (provocado pela exposição solar) poderá evaporar a gasolina e promover um ambiente explosivo dentro do veículo.

AVISO: Em caso de transporte, não abasteça em excesso o depósito de combustível.

PRECAUÇÃO: Esvazie o depósito de combustível, em caso de transporte por estradas acidentadas ou através de campos.

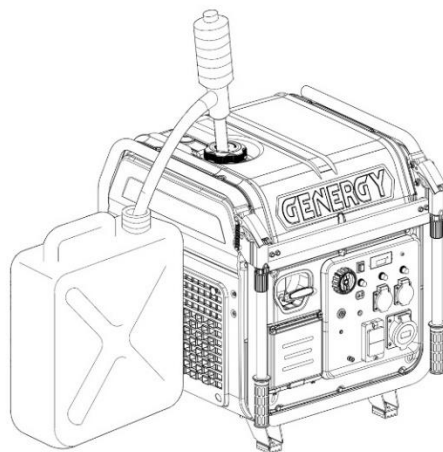
10.2 Armazenagem do gerador

Quando armazenado por longos períodos de tempo, a gasolina perde as suas propriedades e cria resíduos, os quais podem bloquear o seu fluxo até ao carburador, impedindo o arranque. Caso o gerador não funcione por longos períodos de tempo (2-3 meses ou mais), será necessário extrair toda a gasolina do depósito e do carburador.

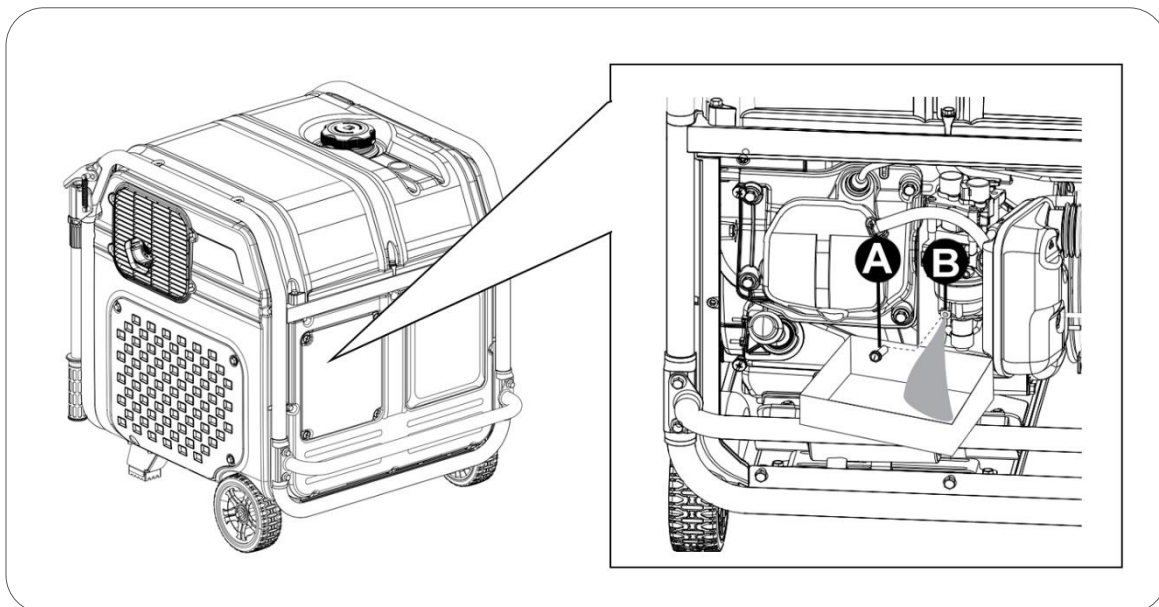
1. Remova todo o combustível do depósito recorrendo a uma bomba de sucção e depositando o combustível num recipiente adequado.

NOTA: Não utilizar garrafas normais de plástico, pois alguns plásticos decompõem-se parcialmente em contacto com gasolina e esta será também contaminada. Se reutilizada, a gasolina contaminada pode danificar um motor.

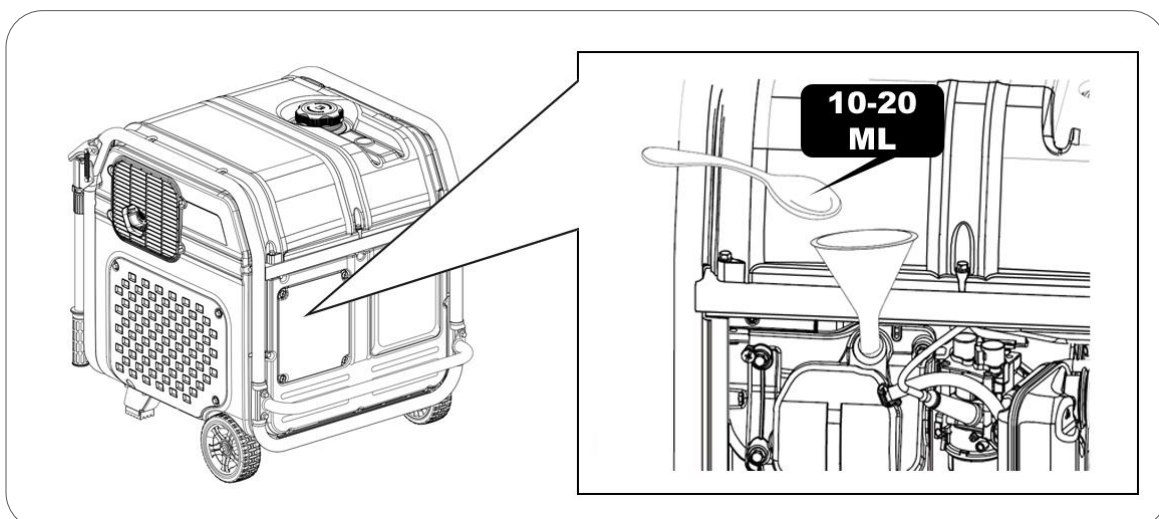
PERIGO: A gasolina é explosiva e inflamável. Enquanto manuseia a gasolina, nunca fume ou provoque qualquer tipo de chispa ou chama.



2. Por baixo do orifício de drenagem, colocar um recipiente adequado para recolha da gasolina.
3. Utilizando uma chave sextavada desenrosque o parafuso de drenagem do carburador (A), a gasolina começará a fluir através do orifício de drenagem do carburador (B). Logo que a gasolina esteja toda drenada, apertar o parafuso de drenagem.



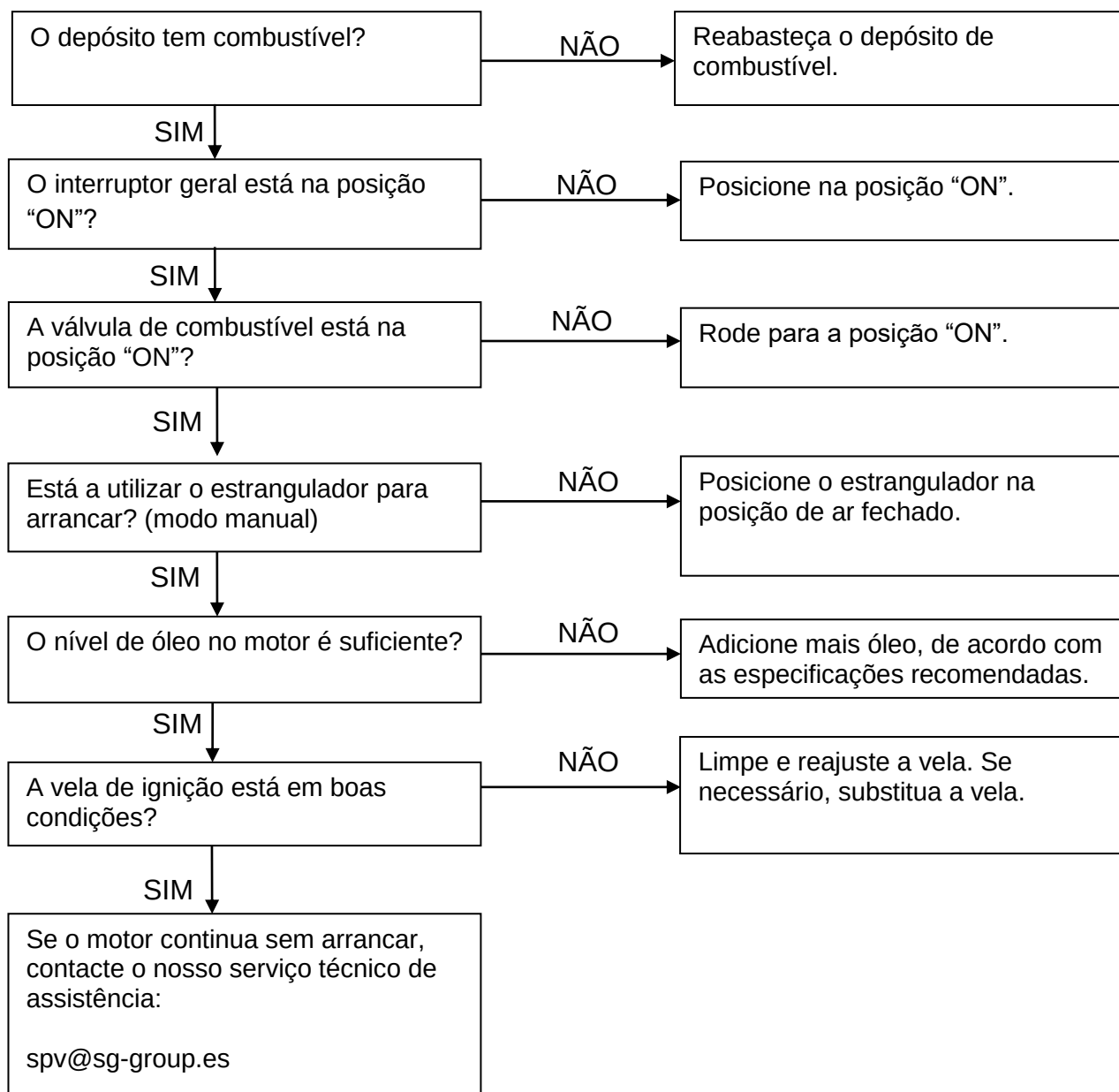
4. Retirar a vela de ignição (ver capítulo 9.3) e verter diretamente no cilindro uma colher de chá de óleo do motor limpo (10~20ml). Suavemente, puxe a corda de arranque do motor, que fará rodar o motor e distribuir o óleo. Seguidamente, volte a instalar a vela de ignição.



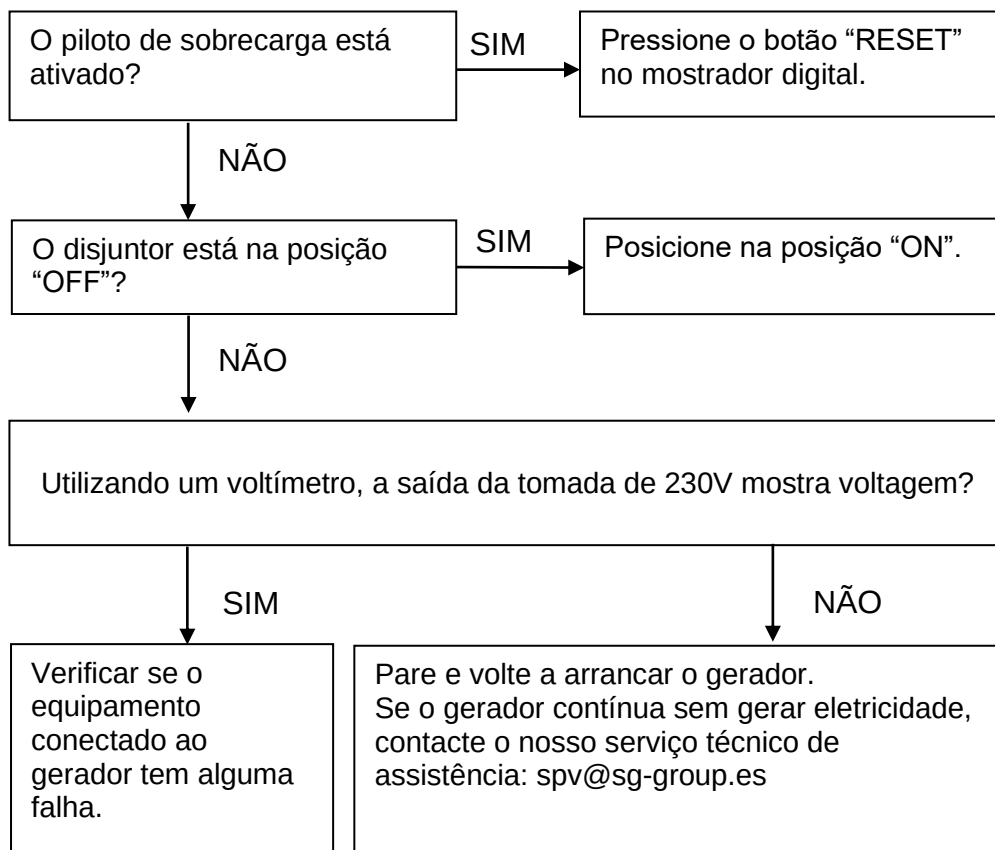
5. Suavemente, volte a puxar a corda de arranque até sentir resistência. Neste ponto, o pistão irá subir no seu curso de compressão e as válvulas de admissão e escape ficarão fechadas. Nesta posição não pode entrar humidade no motor, o que proporciona uma proteção contra a corrosão interna.

11 Resolução de problemas:

- Se o motor não arranca:



- Equipamentos monofásicos (230V) conectados ao gerador não funcionam:



12 Informação técnica:

MODELO	CRETA SILENT RC
Sistema estabilizador de Voltagem —Voltagem—Frequência	Inverter 230V 50Hz THD <3%
AC 230V Máxima (S 25min)	7500W
AC 230V Nominal (COP)	7200W
AC 230V Máxima (S 25min)	-
AC 230V Nominal (COP)	-
Tipo por número de fases	Monofásico
Fator de potência	1
Modelo do motor	SGB PRO 460
Cilindrada	459CC
Tipo de motor	Gasolina, 4 tempos OHV refrigerado a ar
Nível de pressão acústica média 7mts LpA (<i>Ralenti</i> -nominal)	61.5dB(A) – 75.5dB(A)
Nível de potência acústica garantida LwA	96dB(A)
Tipo de arranque	Manual – Elétrico – Controlo Remoto
Capacidade do depósito de combustível	23L
Consumo gasolina por hora a 25% 50% 75% de carga (aproximado)	1.7/LH-2.6L/H-3.6L/H
Autonomia a 25% 50% 75% de carga (aproximada)	14H —9H — 7H
Capacidade e graduação do óleo	1.1L — SAE-5W40 SINTÉTICO
Nível de isolamento	F
Classe segundo qualidade de isolamento	A
Classe segundo rendimento	G2
Normalização	ISO 8528-13:2016
Kit de transporte	Manga de transporte e rodas de 8"
Dimensões	667 x 677 x 630mm
Peso	88Kg

MODELO	CRETA SILENT ATS
Sistema estabilizador de Voltagem —Voltagem—Frequência	Inverter 230V 50Hz THD <3%
AC 230V Máxima (S 25min)	7500W
AC 230V Nominal (COP)	7200W
AC 400V Máxima (S 25min)	-
AC 400V Nominal (COP)	-
Tipo por número de fases	Monofásico
Fator de potência	1
Modelo do motor	SGB PRO 460
Cilindrada	459CC
Tipo de motor	Gasolina, 4 tempos OHV refrigerado a ar
Nível de pressão acústica média 7mts LpA (<i>Ralenti</i> -nominal)	61.5dB(A) – 75.5dB(A)
Nível de potência acústica garantida LwA	96dB(A)
Tipo de arranque	Manual – Elétrico – Falha de rede (requer quadro ATS)
Capacidade do depósito de combustível	23L
Consumo gasolina por hora a 25% 50% 75% de carga (aproximado)	1.7/LH-2.6L/H-3.6L/H
Autonomia a 25% 50% 75% de carga (aproximada)	14H —9H — 7H
Capacidade e graduação do óleo	1.1L — SAE-5W40 SINTÉTICO
Nível de isolamento	F
Classe segundo qualidade de isolamento	A
Classe segundo rendimento	G2
Normalização	ISO 8528-13:2016
Kit de transporte	Manga de transporte e rodas de 8"
Dimensões	716 x 606 x 707mm
Peso	88kg

MODELO	CRETA SILENT SOL
Sistema estabilizador de Voltagem —Voltagem—Frequência	Inverter 230V 50Hz THD <3%
AC 230V Máxima (S 25min)	7500W
AC 230V Nominal (COP)	7200W
AC 400V Máxima (S 25min)	-
AC 400V Nominal (COP)	-
Tipo por número de fases	Monofásico
Fator de potência	1
Modelo do motor	SGB PRO 460
Cilindrada	459CC
Tipo de motor	Gasolina, 4 tempos OHV refrigerado a ar
Nível de pressão acústica média 7mts LpA (<i>Ralenti</i> -nominal)	61.5dB(A) – 75.5dB(A)
Nível de potência acústica garantida LwA	96dB(A)
Tipo de arranque	Manual – Elétrico – Automático por contacto NA
Capacidade do depósito de combustível	23L
Consumo gasolina por hora a 25% 50% 75% de carga (aproximado)	1.7/LH-2.6L/H-3.6L/H
Autonomia a 25% 50% 75% de carga (aproximada)	14H — 9H — 7H
Capacidade e graduação do óleo	1.1L — SAE-5W40 SINTÉTICO
Nível de isolamento	F
Classe segundo qualidade de isolamento	A
Classe segundo rendimento	G2
Normalização	ISO 8528-13:2016
Kit de transporte	Não
Dimensões	667 x 677 x 630mm
Peso	88kg

Medições dos níveis de ruído:

- ✓ O nível de pressão acústica média a 7 metros (LpA) é a média aritmética do nível de ruído obtido de quatro direções e a 7 metros de distância do gerador.

 **NOTA:** Ambientes envolventes diferentes resultam em níveis de ruído também diferentes.

Norma harmonizada aplicada:

- ✓ ISO8528-13:2016: Grupos eletrogêneos acionados por motor de combustão.

Diretivas CE aplicáveis:

2006/42/EC:	Diretiva de máquinas
EU/2016/1628:	Emissões de máquinas movidas por motor
2014/30/EU:	Compatibilidade eletromagnética
2014/35/EU:	Diretiva de baixa voltagem
2000/14/EC (revogada pela 2005/88/EC):	Diretiva de emissões sonoras
2011/65/EU:	Diretiva RoHS
(EC) no-1907/2006:	Regulação REACH

13 Informação sobre garantia:

À sua máquina aplica-se a seguinte garantia:

- ✓ 2 anos para máquinas faturadas a consumidores (particulares).
- ✓ 1 ano para máquinas faturadas a empresas, sociedades, cooperativas ou qualquer outra entidade legal diferente do consumidor final (particular).

O período de garantia é definido apenas pela informação que consta na fatura: tipo de entidade que adquiriu e data de aquisição. Em nenhum caso, se considera como referência o destino ou utilização que se dá ao produto.

Esta garantia cobre qualquer defeito de fabrico que o gerador possa ter durante a vigência do seu período de garantia, com o pressuposto de que o plano de manutenção é respeitado e os seus cuidados são adequados. A garantia abrange as peças de reparação e a mão-de-obra necessária.

Não está coberto pela garantia qualquer tipo de consumível (filtros, baterias, pilhas, velas, etc.), nem qualquer tipo de manutenção preventiva. Também não está coberto pela garantia, as peças com desgaste provocado pelo normal funcionamento do gerador.

Declaración de conformidad del fabricante / Declaration of conformity of manufacturer / Declaração de conformidade

SG GROUP Avenida del Ebro, 12 Calahorra 26500 (La Rioja) Spain

Declara que el siguiente aparato cumple con los requisitos básicos adecuados a la seguridad y salud según las directivas de la CE (mostradas en esta declaración) basados en su diseño de origen puesto en circulación por nosotros. Esta declaración se refiere exclusivamente a la maquinaria en el estado en que se ofrece al mercado, y excluye los componentes que se añadan y/o las operaciones realizadas posteriormente por el usuario final.

Declare that the following Appliance complies with the appropriate basic safety and health requirements of the EC Directives (show in this declaration) based on its design and type, as brought into circulation by us. This declaration relates exclusively to the machinery in the state in which it was placed on the market, and excludes components which are added and/or operations carried out subsequently by the final user.

Declaramos que o seguinte equipamento cumpre com os requisitos básicos relativos à Segurança e Saúde, segundo as diretivas da CE (incluídas nesta declaração), e o desenho de origem disponibilizado por nós. Esta declaração refere-se exclusivamente ao estado do equipamento quando se coloca no mercado, e excluem acessórios e/ou componentes adicionados pelo utilizador à posteriori.

- | | | |
|---|-----------------------------------|--|
| ✓ | Denominación / Name / Designação: | Generador a gasolina / Gasoline gen set / Gerador gasolina |
| ✓ | Marca / Brand / Marca: | GENERGY |
| ✓ | Modelo / Model / Modelo: | CRETA SILENT 7500W |
| ✓ | Nº Serie / Serial-no / Nº serie: | 0000000000000 |

Norma armonizada usada / Used harmonized standards / Norma harmonizada usada:

- | | | |
|---|------------------|---|
| ✓ | ISO8528-13:2016: | Grupos electrógenos accionados por motor de combustión / Reciprocating internal combustion engine driven generating sets / Geradores movidos a motor de combustão |
|---|------------------|---|

Directivas CE aplicables / Applicable EC Directives / Diretivas CE aplicáveis:

- | | | |
|---|----------------------------------|--|
| ✓ | 2006/42/EC: | Directiva de maquinaria / Machinery directives / Diretiva máquinas |
| ✓ | EU/2016/1628: | Emissiones de máquinas movidas por motor / Emissions machines powered by engine / Emissões de máquinas motorizadas |
| ✓ | 2014/30/EU: | Compatibilidad electromagnética / Electromagnetic compatibility / compatibilidade eletromagnética |
| ✓ | 2014/35/EU: | Directiva bajo voltaje / Low voltage directive / Diretiva baixa tensão |
| ✓ | 2000/14/EC (amended 2005/88/EC): | Directiva de emisiones sonoras / Noise Emission directive / Diretiva emissões de ruído |
| ✓ | 2011/65/EU: | RoSH directive/ RoSH directive/ diretiva RoSH |
| ✓ | (EC) NO.1907/2006: | Regulation REACH/REACH regulations/ Regulacione REACH |

Nivel de potencia acústica garantizada / Guaranteed sound power level / Nível de potência acústica garantida: 97 dB L_{WA}

Calahorra 01-04-2023



Mr Ruben Losantos (Tech manager)

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