

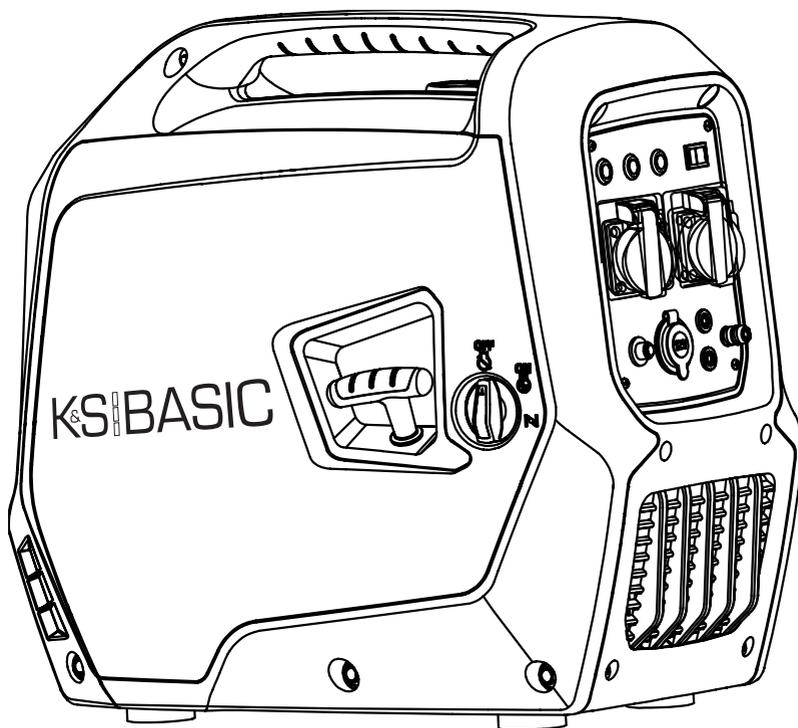


K&S|BASIC

SIMPLE ENERGY

**Inverter Generator
in Soundproof Housing**

KSB 21i S





Thank you for your purchase of **K&S Basic** products. This manual contains a brief description of safety, use and debugging. More information can be found on the official manufacturer's website in the support section: **konner-sohnen.com/manuals**

You can also go to the support section and download the full version of the manual by scanning the QR code, or on the website of the official importer of **K&S Basic** products: **www.konner-sohnen.com**



We care about the environment, therefore, we consider it expedient to save paper and leave in print a short description of the most important sections.



Be sure to read the full version of the manual before getting started!



Manufacturer reserves the right to make alterations into the generators, which may not be reflected in this manual. Pictures and photos of the product may vary from its actual appearance. At the end of this manual, You may find contact information which you are free to use in case of any issues occurrence.

All data, specified in this operation manual is the most up to date for the moment of its publishing. The current list of service centers you can find at the website of official importer: **www.konner-sohnen.com**



ATTENTION – DANGER!



Failure to follow the recommendations marked with this sign may lead to serious injury or death of the operator or third parties.



IMPORTANT!



Useful information while operating the machine.

SAFETY INFORMATION

1

Do not use the generator in rooms with poor ventilation or in conditions of excessive humidity. Do not place the generator in water or on moist soil. Do not expose the generator to rain, snow, as well as to direct sunlight for a long time. Place the generator on a flat, hard surface, away from flammable liquids/gases (at a minimum distance of 1 m). Install the generator at a distance of not less than 1 m from the front control panel and not less than 50 cm on each side, including the upper part of the generator. Keep unauthorized persons, children, and animals away from work area. Wear safety shoes and gloves.



VORSICHT - GEFAHR!



Da die Abgase giftiges Kohlendioxid (CO₂) und Kohlenmonoxid (CO) enthalten, die lebensgefährlich sind, ist es strengstens verboten, den Generator in Wohngebäuden, mit Wohngebäuden verbundenen Räumen mit einem gemeinsamen Lüftungssystem und anderen Räumen aufzustellen aus denen Abgase in Wohnräume gelangen können.

ELECTRICAL SAFETY

1.1



ATTENTION – DANGER!



The device generates electricity. Follow safety precautions to avoid electric shock.

The generator produces electricity that may lead to an electric shock while neglecting compliance regulations. All connecting the generator to the network must be made by certified electrician in accordance with all electrical rules and regulations. Connect the generator to the protective ground before operation. Wires with damaged or spoiled insulation should be replaced. You should also replace worn, damaged or rusty contacts.



ATTENTION – DANGER!



Be careful. Do not operate the generator, if you are tired, under the influence of drugs or alcohol. Inattention may cause a serious injury.



IMPORTANT!



Using device for other purposes deprives the right for free warranty.

PRECAUTIONS WHEN WORKING WITH GASOLINE GENERATOR

1.2

Do not start the generator operation upon presence of electric load! Disconnect the load before you stop the engine. **Only unleaded gasoline is recommended for the generator.** It is forbidden to use kerosene or other fuel types. Before running the generator, it is necessary to define the place and means of its emergency stop. Do not refuel the running generator.



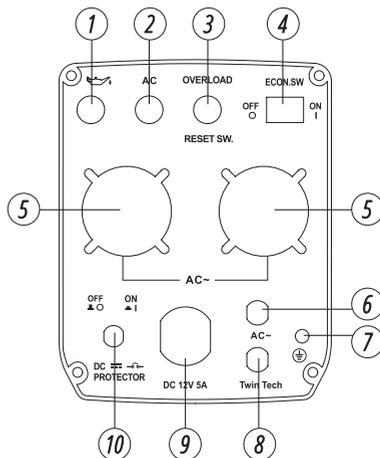
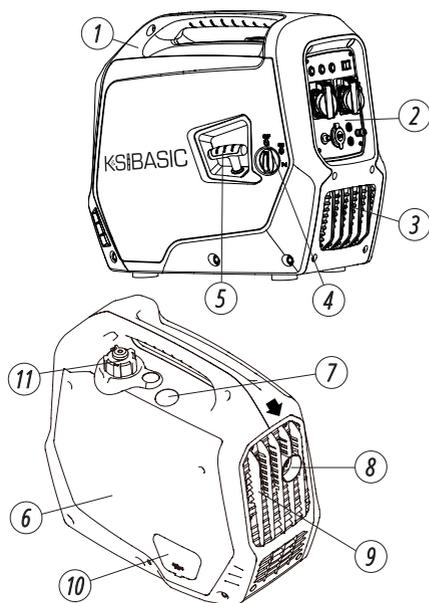
ATTENTION – DANGER!



Fuel contaminates the land and groundwater. Do not allow the leaking gasoline from the tank!

MAIN OVERVIEW

2



1. Transport handle
2. Control panel
3. Ventilation grille
4. 3-in-1 switch
5. Manual starter
6. Fuel tank cap air vent
7. Spark plug service cover
8. Silencer
9. Service cover (for motor oil change)
10. Air filter service cover

1. Oil level indicator
2. Voltage indicator
3. Overload indicator
4. Economy control switch (ECONOMY MODE)
5. 16A outlets
6. Generator parallel socket
7. Grounding
8. 12V/5A DC outlet
9. 12V DC fuse



IMPORTANT!



Manufacturer reserves the right to make changes and/or improvements in design, components set and technical attributes without notice and without incurring obligation. The pictures in this manual are schematical and may not match the parameters of original product.

SPECIFICATIONS

3

Model	KSB 21i S
Max Power, kW	2.0
Nominal Power, kW	1.8
Engine power, hp	3.3
Frequency, Hz	50
Voltage, V	230
Current, A (max.)	7.9
Output 12V, A	12V/5A
Engine model	KSB 100i
Engine cylinder volume cm³	79.7
Engine type	gasoline 4 stroke cycle engine
Maximum ambient temperature	40°C
Outlets	2x16A
Power factor, cosφ	1
Fuel tank volume, l	4
Crankcase volume, l	0.35
Generator parallel socket	+
Engine start	manual
Noise level L_{PA}(7m)/L_{WA}, dB	62/87
Performance class	G2
Gross dimensions (LxWxH), mm	540x325x490
Net weight, kg	21
Protection class	IP23M
Nominal voltage tolerance – max. 5%	

To ensure reliability and increase the engine service life, peak powers may be slightly limited by circuit breakers.

The optimal operating conditions are ambient temperature of 17-25°C, barometric pressure of 0.1 MPa (760 mm Hg), and relative humidity of 50-60%. Under these environmental conditions, the generator can provide maximum performance in terms of the declared specifications.

In the event of deviations from these environmental indicators, the generator performance may vary.

Please note that continuous loads exceeding 80% of the generator's rated power are not recommended in order to extend its service life.

TERMS OF USE OF INVERTER GENERATOR

4

It is recommended to ground the generator before operating it for the first time. Before starting the device, remember that the total power of the connected power consumers should not exceed the nominal power of the generator.



IMPORTANT!



To avoid electric shock due to poor-quality electrical appliances or improper use of electricity, the generator must be earthed using a high-quality insulated conductor.

**IMPORTANT!**

Make sure that the control panel, the blinds and the underside of the inverter are well cooled and protected against the ingress of small solids, dirt, and water. Improper operation of the cooler can cause damage to the motor, inverter or alternator.

WORKING WITH THE DEVICE**5****OIL LEVEL INDICATOR**

When the oil level falls below the level required for operation, the oil level indicator lights up, and then the engine stops automatically. The engine will not start until oil is added.

AC INDICATOR

When the generator is running and producing electricity, the AC indicator light is on.

OVERLOAD INDICATOR

The RESET button has a built-in overload indicator. When approaching the overload condition, the indicator starts flashing. The overload indicator lights up when the connected generator is overloaded, the inverter control unit overheats or the AC output voltage rises.

If the overload indicator goes on, the engine will continue to operate, but the generator will no longer produce electricity. In this case, you must perform the following steps:

1. Turn off all connected electrical appliances.
2. Reduce the total power of the connected devices until the nominal power of the generator is reached.
3. Press the RESET button once to restore socket voltage. After that the WORKING MODE indicator will flash 3 times and the power supply will be restored.

**IMPORTANT!**

The overload indicator may light up within several seconds after start-up or when connecting electrical devices requiring a high starting current, such as a compressor. However, this is not a malfunction.

DC FUSE

The DC protector automatically switches to "OFF" when the current of the operating electrical device is higher than the rated current. To use this equipment again, turn on the DC fuse again by pressing the "ON" button.

**IMPORTANT!**

If the DC fuse turns off, reduce the load of the connected electrical device. If the DC protector turns off again, stop operation and contact your nearest K&S Basic service center.

FUEL TANK CAP AIR VENT (FOR MODELS IN SOUNDPROOF HOUSING)

The fuel cap is equipped with a vent for air supply to the fuel tank. When the engine is running, the vent must be in the "ON" position (OPEN). This will allow fuel to enter the carburetor for engine operation. When the generator is not in use, close the vent to the "OFF" position.

GROUND TERMINAL

The ground terminal forms a ground line to prevent electric shock. If the electrical appliance is grounded, the generator must also be grounded.

CHECK BEFORE GETTING STARTED**6****CHECKING THE FUEL LEVEL**

1. Unscrew the fuel cap and check the fuel level in the tank.
2. Fill the fuel tank to the fuel filter level.

3. Tighten the fuel cap securely.
4. For silent models of inverter generator, open the air intake vent on the fuel cap.

Recommended fuel: only unleaded gasoline is recommended for the generator.

Fuel tank volume: see specifications table.



IMPORTANT!



Wipe up spilled fuel immediately with a clean, dry, soft cloth, as the fuel may harm painted surfaces or plastic parts.



IMPORTANT!



Use only unleaded gasoline. Using leaded gasoline can cause serious damage to the inside of the engine.

CHECKING THE OIL LEVEL

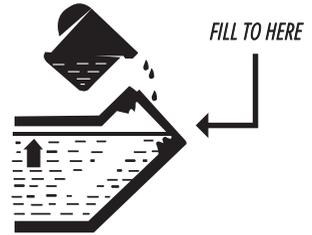
The generator is transported free of motor oil. Do not start the engine until it is filled with sufficient amount of motor oil.

1. Unscrew the oil dipstick and wipe it out with a clean cloth.
2. Insert the dipstick without screwing it in.
3. Check the oil level by a mark on the oil dipstick.
4. Add oil if its level is below the mark on the oil dipstick.
5. Screw on the dipstick.

Recommended motor oil: SAE 10W30, SAE 10W40.

Recommended motor oil grade: API Service SG type or higher.

Motor oil quantity: see specifications table.



GETTING STARTED

7

Before starting the engine, make sure that the rated power of power consumers matches with the power of generator. Do not exceed the nominal power of the generator. **Do not connect any devices before you start the engine!**



IMPORTANT!



Do not change the controller settings in terms of the amount of fuel or speed governor (this adjustment was made at the factory). Otherwise, this may result in changes in the engine operation or its failure.



ATTENTION – DANGER!



In the power supply mode, the generator should operate no longer than 1 minute in the range from nominal to maximum power.

COMMISSIONING

1. Fill the crankcase with engine oil. The recommended amount of oil for each model is indicated in the specification chart.
2. Check oil level with an oil dipstick. It should be between the MIN and MAX marks on the oil dipstick.
3. Check fuel level.
4. Check the air filter for correct installation

In the first 20 operating hours of the generator, the following requirements should be met:

1. During commissioning, do not connect power consumers, the power of which exceeds 50% of the nominal (operating) power of the device.
2. After the first 20 operating hours, be sure to change the oil. It is better to drain oil while the engine is still hot after operation to ensure quick and complete oil draining.
3. Check and clean the air filter, fuel filter and spark plug.



IMPORTANT!



Before starting the generator, connect the ground wire to the ground terminal.

ENGINE START



IMPORTANT!



Useful tip: If the engine stalls or does not start, turn the engine switch to the “ON” position, and then pull the manual starter. If the oil level indicator flickers for several sECONOMY MODEs, add oil and restart the engine.



IMPORTANT!



Each time you start the generator, be sure to check oil and fuel level

1. Check oil level.
2. Check fuel level.
3. Open the vent on the fuel cap to the “ON” position (Fig. 1).
4. Set the 3-in-1 switch to “Air choke” (Fig. 2).

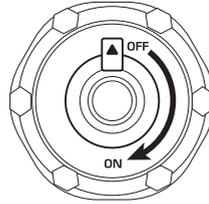


Fig. 1

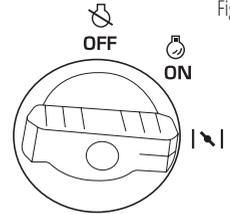


Fig. 2

In this position:

a. Ignition circuit is on. **b.** Fuel valve is open. **c.** Air choke is closed.

(If the engine is warm, no need to turn to Choke position, turn immediately to “ON” position).

5. Pull the manual starter until a slight resistance is felt, then pull it toward you relatively sharply. Slowly turn the manual starter by hand, do not release it abruptly.

6. Set the 3-in-1 switch to “ON” (Fig. 2).



IMPORTANT!



Useful tip: to ensure long-term operation of the generator engine, it is important to observe the following tips:

- Before connecting the load, allow the engine to run for 1-2 minutes to warm it up.
- When disconnecting the load after lengthy operation, do not turn off the generator. Allow the generator to run idle for 1-2 minutes so that it cools down.



ATTENTION – DANGER!



Do not connect two or more devices at a time. The start-up of many devices requires high power. Devices should be connected one at a time according to their power rating. Do not connect any power consumers within the first 2 minutes after the generator has been started.

FUNCTIONAL DESCRIPTION OF INVERTER GENERATORS

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ECONOMY MODE FUNCTION

1. Start the engine.
2. Set the ECONOMY MODE switch to “ON”.
3. Plug the device into an AC outlet.
4. Make sure the AC indicator light is on.
5. Turn on the electrical device.



IMPORTANT!



The ECONOMY MODE switch must be set to “OFF” to increase engine speed to nominal. When connecting multiple power consumers to the generator, be sure to first connect the one with the highest starting current, and the device with the lowest starting current should be connected last.

“ON” MODE

When the ECONOMY MODE switch is in the “ON” position, the control unit monitors the engine speed, reducing it commensurate with the connected load. If the engine speed is not enough to generate electricity to provide the load, the control unit will automatically increase the engine speed.

As a result, fuel consumption is optimized and noise levels are reduced.

“OFF” MODE

The ECONOMY MODE switch must be set back to “OFF” when using electrical devices requiring a high starting current, such as a compressor or submersible pump.



IMPORTANT!



The ECONOMY MODE switch must be set back to “OFF” when using electrical devices requiring a high starting current, such as a compressor or submersible pump.

PARALLEL FUNCTION

You can increase the total output power of the generators by connecting the two inverter generators together with special cables for parallel connection of KSB PC-1 from K&S Basic TM (not included in a set). Parallel connection of two generators ensures total rated output power of these generators. When the generators are connected in parallel, the power loss is 0.2 kW of the total rated power that can be obtained.

During parallel operation, the ECONOMY MODE switch must be in the same position on both generators.

1. Connect the KSB PC-1 parallel cable to the dedicated outputs on the generator control panel. Do not use any other cables, don't combine different generator models.
2. Start the engines of the same generator models (KSB 21i S), check that the green WORKING MODE indicator on each generator is on.
3. Plug the appliance into a socket.
4. Switch on the appliance.

If the overload indicator lights up, follow the standard generator overload procedure described in section 5 (reduce the load and press the RESET button on both generators).



ATTENTION - DANGER!



Do not connect or disconnect parallel cables while the generator is running. If you plan to use only one generator, the parallel cables must be disconnected with the engine off.

STOPPING THE ENGINE

9

DISCONNECT ALL DEVICES BEFORE STOPPING THE GENERATOR!

Do not stop the generator with the devices turned on. This may disable the generator or devices connected to it!

TO STOP THE ENGINE, PROCEED AS FOLLOWS:

1. Turn off all devices.
2. Allow the generator to run idle for approx. 1-2 minutes.
3. Set the engine switch to the “OFF” position.
4. Set the 3-in-1 switch to “OFF” (Fig. 3).
5. Allow the generator to cool down.
6. Unplug the devices.
7. After the generator stops, allow it to cool down and close the vent (set to OFF, as shown in Fig. 4).

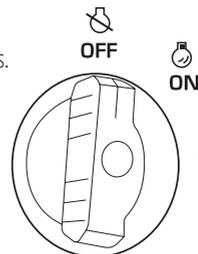


Fig. 3

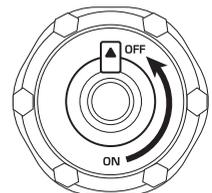


Fig. 4

This manual compliance! You can find a list of service center addresses on the website of exclusive importer: www.konner-sohnen.com

TECHNICAL MAINTENANCE WORKS

Unit	Action	At each start	First month or 20 operating hours	Every 3 months or 50 operating hours	Every 6 months or 100 operating hours	Every year or 300 operating hours
Motor oil	Level check	☑				
	Replacement		☑	☑		
Air filter	Check /Cleaning	☑	☑	☑		
	Replacement				☑	
Spark plug	Cleaning		☑	☑		
	Replacement				☑	
Fuel tank	Level check	☑				
	Cleaning					☑
Fuel filter	Check (clean out)		☑	☑		
	Replacement				☑	

- If the generator often operates at high temperature or high load, the oil should be replaced every 25 operating hours.
- If the engine often runs in dusty or other harsh conditions, clean the air filter every 10 operating hours.
- If you missed the maintenance time, perform it as soon as possible to save the generator engine.



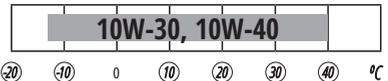
IMPORTANT!



The manufacturer shall not be liable for any damage caused by failure to perform maintenance work.

RECOMMENDED OILS

Use oils designed for four-stroke cycle vehicle engines SAE10W-30, SAE10W-40. Motor oils with other viscosity levels, may be used only if the average air temperature in your region does not exceed the limits of the temperature range, specified in the table.



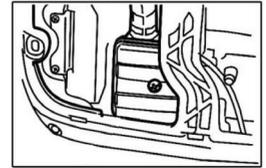
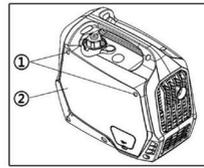
Upon oil level decrease it is necessary to add the required quantity in order to provide the correct generator operation. It is necessary to check the oil levels according to technical maintenance schedule. The detailed description of oil filling and draining can be found in the full version of the manual.

AIR FILTER TECHNICAL MAINTENANCE

Air filter cleaning is to be performed each 50 hours of the generator operation (every 10 hours in unusually dusty conditions).

CLEANING THE FILTER:

1. Open the clips on the top cover of the air filter. Unscrew the bolts (1) and remove cover (2).
2. Remove the sponge filter element.
3. Remove all dirt inside the empty air filter housing.
4. Clean the filter element thoroughly in warm soapy water.
5. Dry the sponge filter.
6. Soak a dry filter element in engine oil, then squeeze out excess oil.



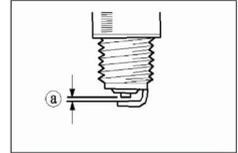
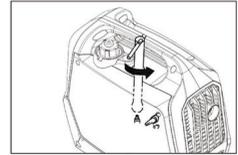
SPARK PLUGS TECHNICAL MAINTENANCE

13

Spark plug has to be intact, without soot deposits and to have a correct gap.

SPARK PLUG VERIFICATION:

1. Remove the cap from the spark plug.
2. Remove the spark plug by means of a corresponding spanner.
3. Examine the spark plug. If it is shattered – it is necessary to replace it. A7RTC spark plug or CR7HSA (NGK) equivalent is recommended.
4. Measure the gap. It has to be within range 0.6-0.7 mm.
5. In case of repeated use, the spark plug has to be cleaned by means of a metal brush. After that – set the correct gap.

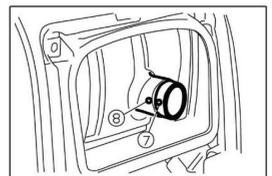
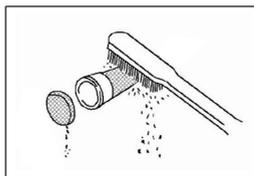
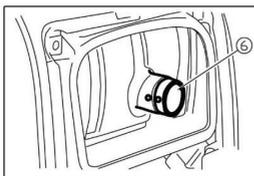
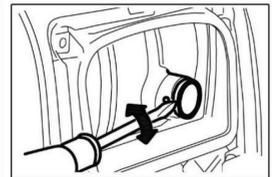
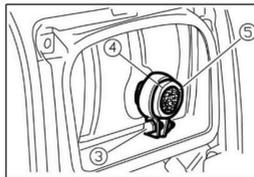
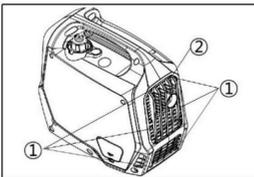


DAMPER AND FLAME ARRESTER MAINTENANCE

14

The engine and damper will get very hot after the generator has been started. Do not touch the engine or damper with any part of your body or clothing during inspection or repair until they have cooled down.

Remove the screws and then pull the protective cover towards you. Loosen the bolts and remove the cover, screen and flame arrester of the damper. Descal the screen and flame arrester of the damper with a wire brush. Inspect the screen and flame arrester of the damper. Replace them if they are damaged. Replace the flame arrester. Replace the screen and cover of the damper. Replace the cover and tighten the screws.



IMPORTANT!



Match the protrusion of the flame arrester to the hole in the pipe damper.



IMPORTANT!

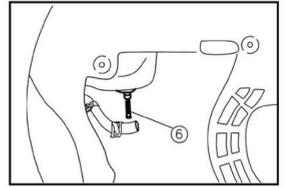
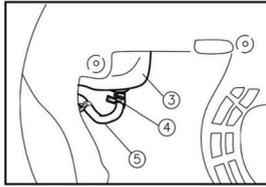
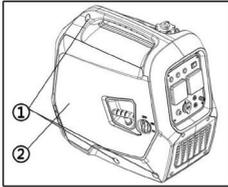


Never use gasoline while smoking or in the immediate vicinity of an open flame.

1. Remove the fuel tank cap and fuel filter.
2. Clean the filter with gasoline.
3. Wipe the filter and replace it.
4. Replace the fuel tank cap. Make sure that the fuel tank cap is tight.

FUEL FILTER TECHNICAL MAINTENANCE

1. Unscrew the bolts (1), remove the cover (2), and drain the fuel (3).
2. Loosen the clips (4) while holding them and remove the hose (5) from the fuel tank.
3. Remove the fuel filter (6).
4. Flush the filter with fresh gasoline.
5. Allow the filter to dry out and put it back in the fuel tank.
6. Mount the hose and clamp and then open the fuel valve to check for leaks.
7. Replace the cover and tighten the screws.



STORAGE



IMPORTANT!



The generator must be stored and transported with a closed vent at all times!

Storage room has to be dry and free from dust deposits. Storage room also has to be locked away from children and animals. It is recommended to store and use the generator at temperature of -20°C to +40°C. Avoid direct sunlight, rain on the generator.

Potential faults and troubleshooting methods, as well as average device capacities can be found in the full version of the manual.

BATTERY AND GENERATOR DISPOSAL

To prevent environment damage generator should be separated from ordinary waste. Please recycle it in the safest way, passing it to special place for disposal.

WARRANTY SERVICE TERMS

The international manufacturer warranty is 1 year. The warranty period starts from the date of purchase. In cases when warranty period is longer than 1 year according to local legislation please contact your local dealer. The Seller which sells the product is responsible for granting the warranty. Please contact the Seller for warranty. Within the warranty period, if the product fails because of defects in the production process, it will be exchanged on the same product or repaired.

All faults caused by the manufacturer during the warranty period will be eliminated free of charge. Warranty repair is carried out only if you have a fully completed warranty card, the Buyer's signature of acceptance of the warranty terms, as well as a document supporting the purchase (cash receipt, sales slip or invoice). In the absence thereof, as well as in the event of errors or corrections not authenticated by the seller's seal or illegible inscriptions in the warranty card or tear-off coupon, no warranty repair is carried out, no objections to quality are accepted and the warranty card is withdrawn by the service center as invalid. The device is accepted for repair clean and full.



EC Declaration of Conformity

Nr. 124

The following products have been tested by us with the listed standards and found in compliance with the European Community Machinery Directive 2006/42/EC, Electromagnetic compatibility Directive (EMC) 2014/30/EC.

Manufacturer: DIMAX INTERNATIONAL GmbH
Address: Flinger Broich 203, 40235 Duesseldorf, Germany
Product: Inverter generator "K&S BASIC"
Type / Model: KSB 21i S

The statement is based on a single evaluation of above mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab. logo. The manufacturer should ensure that all product in series production are in conformity with the product sample detailed in this report. The applicant should hold the whole technical report at disposal of the competent all the right.

Applied EC Directives: 2006/42/EC Machinery Directive
2014/30/EU Electromagnetic compatibility Directive (EMC)
(EU) 2016/1628 Non-Road mobile machinery emissions

Applied Standards: EN ISO 8528-13:2016
EN 55012:2009
EN 61000-6-1:2007

Gasoline engine KSB 100i corresponds to European Emission Standard STAGE V.
This is confirmed by EU TYPE-APPROVAL CERTIFICATE issued by department of transport of Madrid, Spain.
Technical service responsible for carrying out the test -IDIADA.
Date of issue 11/06/2019

2000/14/EC_2005/88/EC Annex VI

For model KSB 21i S Noise measured $L_{WA} = 85$ dB (A), guaranteed $L_{WA} = 87$ dB (A)



Issued Date: 2022-05-20
Place of issue: Duesseldorf
General director: Fomin P. *P. Fomin*

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International
GmbH
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USt-IdNr.: DE29617274

We DIMAX INTERNATIONAL GmbH hereby declare that specified above conforms covering European Parliament and Council Directives, 2006/42/EC of 17 May 2006 Machinery Directive, Electromagnetic compatibility Directive (EMC) 2014/30/EC of 26 February 2014. The CE mark above can be used under the responsibility of manufacturer. After completion of an EC declaration of Conformity and compliance with all relevant EC directives.

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