

Please, read this manual
carefully before use!

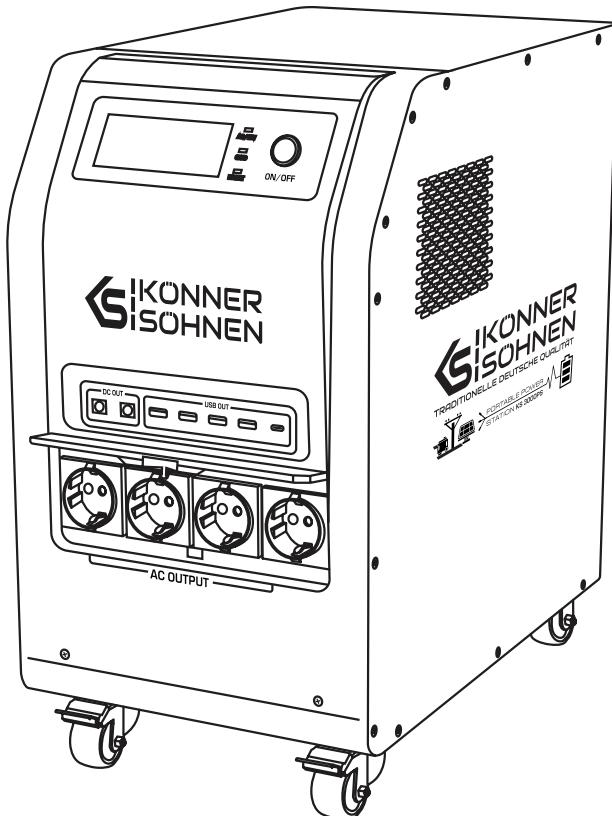
Owner's Manual



Portable power station

KS 3000PS

KS 5200PS





Thank you for opting for **Könner & Söhnen®** products. This manual contains a brief description of safety, setup and use. More information can be found on the official importer's website in the support section: konner-sohnen.com/pages/instructions

You can also go to the support section and download the manual by scanning the QR code or on the website of the official importer of **Könner & Söhnen®** at www.konner-sohnen.com



Please, read this manual carefully before use!

The manufacturer of **Könner & Söhnen®** products reserves the right to make changes that may not be reflected in this manual, namely:

- The manufacturer reserves the right to make changes in the product design, configuration and construction.
- The images and drawings in this manual are for reference only and may differ from the actual components and inscriptions on the products.

Contact information that you are free to use in case of any problems can be found at the end of this manual. All information in this manual is correct to the best of our knowledge and belief at the date of its publication. The current list of service centers can be found on the official importer's website at 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.

PRODUCT DESCRIPTION

1

This product is a multi-function power station that combines a storage battery, MPPT solar charge controller, high frequency pure sine wave inverter and uninterruptible power supply system, and is suitable for emergency power supply or mobile use;

Thanks to the advanced MPPT solar charge controller and intelligent management of the built-in battery, the power station ensures maximum electricity production;

The built-in inverter generates "pure sine wave", has high efficiency, high power, small size and other advantages, and is easy to operate;

The whole unit has high efficiency and low static load losses, as well as high productivity and high power density, which is important for a mobile system.

SAFETY INFORMATION

2

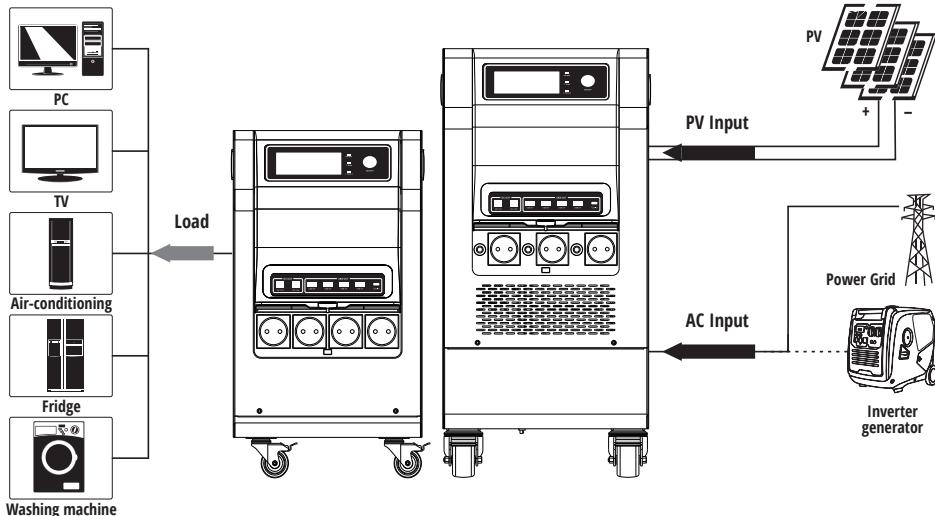
- Before using this unit, please read all instructions and precautions on this unit, understand all relevant chapters in this manual to prevent explosion which may lead to personal injury and battery damage.
- Do not disassemble the unit. When service or repair is required, send it to a professional service center. Incorrect assembly may result in electric shock or fire.
- To reduce the risk of electric shock, disconnect all wiring before attempting any maintenance or cleaning. Switch off the internal battery using the corresponding DC switch on the back of the power station so that the inverter module the power station remains without power.

FEATURES

- Inverter module delivers a sine wave 230VAC 50 Hz with rated power of 3000W or 5200W (depending on the model) when the power factor of the load to be supplied is 1.
- High performance with small dimensions, transport wheels for high mobility.
- The most important parameters such as the input/output power and the charge level of the internal battery are shown on the display.
- 5V USB and 12V DC output supported.
- LED indicators for 230V output status, charging and abnormal function on the front panel. Protection functions include overload protection, overheat protection and short circuit protection.

BASIC SYSTEM STRUCTURE

3

**MAIN OVERVIEW**

4

**IMPORTANT!**

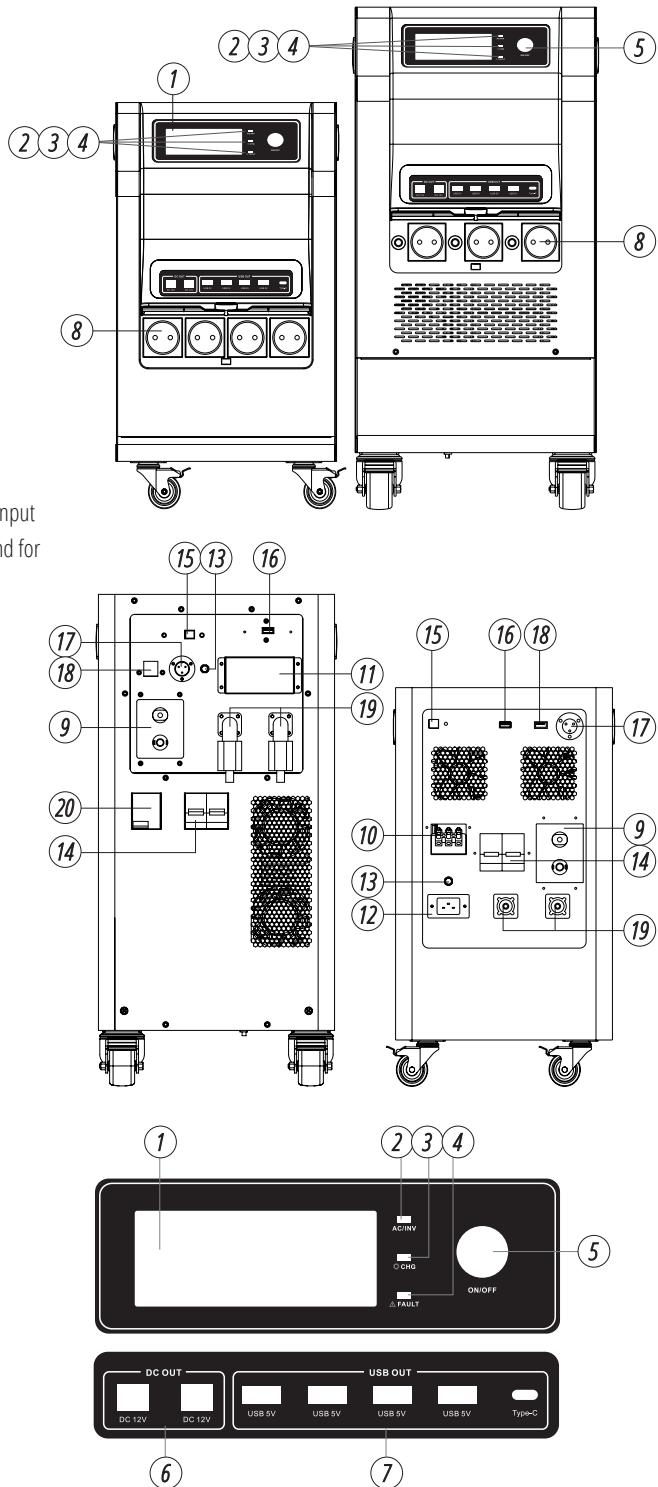
Manufacturer reserves the right to make changes and/or improvements in design, components set and technical attributes without notice and without incurring obligation. The pictures in this manual are schematic and may not match the parameters of original product.

PART LIST

Make sure nothing in the package is damaged. You should have received the following items inside the package.

- Portable power station × 1
- User Manual × 1
- Mains input line × 1 (only for Model KS 3000PS)
- USB Cable × 1
- Quick Plug connector (positive and negative pole)
- Connector MC4 (positive and negative pole)

1. LCD display
2. AC output indicator
3. Charging indicator
4. Fault Indicator
5. ON/OFF switch for the inverter module 230V
6. Outputs 12VDC (DC5521)
7. Outputs USB 5V/2A, USB Type-C 1x5V/2A
8. Sockets 230V AC
9. PV input (MC4)
10. AC output terminal
11. 230V AC Input/Output terminal
12. AC coupling C19 (KS 3000PS)
13. Overload protection for the AC input
14. DC switch for internal battery and for external DC source
15. USB-A for host computer
16. USB for WLAN data logger (optional)
17. ATS connection
18. Dry contacts for generator
19. DC Quick Plug connectors
20. Leakage protection for front sockets



Model		KS 3000PS	KS 5200PS	
AC OUTPUT (INVERTER MODULE)	Rated Power	3000 W	5200 W	
	Output Waveform	Pure Sine Wave		
	Output voltage	230 V ±5 %		
	Output frequency	50Hz / 60Hz (±0,2Hz)		
	Peak efficiency	90%		
	Standby consumption (230V AC output switched off)	< 25W		
PV INPUT	Charging current (MPPT output), max	60A	100A	
	Combined charging current, max	60A	100A	
	Efficiency	98% max		
	Open circuit voltage at PV input, max	160VDC	450VDC	
	Voltage range at the PV input	30–128VDC	150–430VDC	
AC INPUT	AC input voltage	230VAC ±5%		
	Input voltage range	90–280VAC		
	Rated frequency	50Hz / 60Hz (Auto detection)		
	Switching time to off-grid operation	10 ms (UPS), 20 ms (VDE4105, Home, GEN)		
	Charging current of the battery, max	60A	80A	
DC OUTPUT	USB 5V	4 × 5V/2A		
	12V	2 × DC5521 12V/1A		
	Type-C	1 × 5V/2A		
DC INPUT QUICK PLUG	Voltage range, V	24–28,4 (KS 3000PS); 48–56,8 (KS 5200PS)		
	Maximum current, A	120 (KS 3000PS); 100 (KS 5200PS)		
Lithium Battery	Rated voltage	25,6V	51,2V	
	Battery capacity	125Ah/3200Wh	100Ah/5120Wh	
	Rated discharge current	125A	100A	
	Operation temperature	Charging	0°C to 45°C	
		Discharging	-10°C to 60°C	
Dimensions (L×W×H)			550×380×670 mm	
Net weight			37 kg	
			598,5×404×682 mm	
			56 kg	

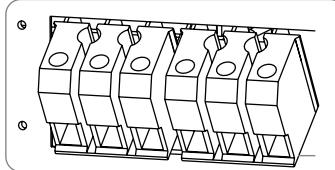
AC INPUT / OUTPUT



CAUTION!



On the left picture are two terminal blocks with "INPUT" and "OUTPUT" markings for Modell KS 5200PS. Please do NOT misconnect input and output connectors. The picture on the right shows the output terminal for KS 3000PS.



AC input + AC output



CAUTION!



Cable from the external AC power source should be protected with a two-pole circuit breaker so that the power station can be switched off on all poles if necessary. The circuit breaker B16 for KS 3000PS and B25 for KS 5200PS is recommended.



WARNING!



All wiring must be performed by a qualified person.



WARNING!



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

Model	Rated current	Cable cross-section
KS 3000PS	13A	12AWG
KS 5200PS	23A	10AWG

Please follow the steps below to connect the AC input and AC output for the KS 5200PS model and the AC output for the KS 3000PS model.

1. Turn off the circuit breaker on the AC power source before connecting the solar power station, so that the connection cable remains without power.
2. Remove 10 mm of insulation from each conductor of the connection cable. The PE conductor should be about 3 mm longer. Install the wire end ferrules to ensure a secure contact.
3. Lead the individual conductors into the corresponding terminals of the AC input terminal (model KS 5200PS) and tighten them. The protective conductor PE should be connected first.

 – Ground (yellow-green)  – Phase conductor (brown or black)  – Neutral (blue)



WARNING!



Be sure to that AC power source is disconnected before attempting to hardwire it to the unit.

4. Insert the individual conductors into the corresponding terminals of the AC output terminal and tighten them. The protective conductor PE should be connected first.

 – Ground (yellow-green)  – Phase conductor (brown or black)  – Neutral (blue)

5. Make sure the wires are securely connected.

Appliances such as air conditioner are required at least 2~3 minutes to restart, as this time is needed to balance the refrigerant gas inside the circuits. If a power shortage occurs and recovers in a short time, it will cause damage to your connected appliances. To prevent this kind of damage, please check with the air conditioner manufacturer if it's equipped with time-delay function before installation. Otherwise, this inverter/charger may trigger an overload fault and cut off output to protect your appliance, though it may still cause internal damage to the air conditioner.



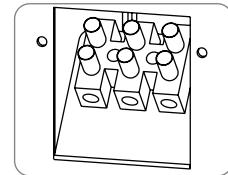
CAUTION!



AC OUTPUT (TERMINALS)

Model KS 3000PS:

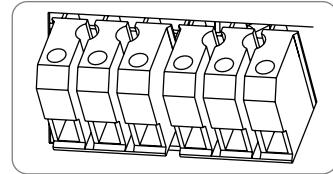
AC output terminal is located on the rear of the power station under a protective cover and is used for a fixed connection to a distribution board. This AC output is equipped with electronic overload protection only. The distribution board must have the required protective devices for final circuits, which are also suitable for IT networks, because the KS 3000PS provides an IT network (neutral isolated) when running on battery power.



The AC output of the power station in battery operation (off-grid) provides an IT network with an isolated neutral conductor. When powered by an external AC power source, the AC output provides the same network as the external AC power source. The external AC power source is connected through.

Model KS 5200PS:

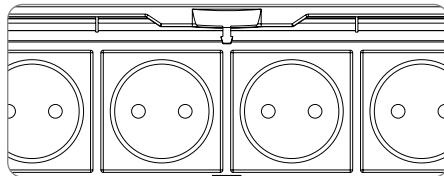
AC output terminal (3 terminals on the right) is located on the rear of the power station under a protective cover and is used for a fixed connection to a distribution. This AC output is equipped with electronic overload protection only. The distribution board must have the required protective devices for final circuits.



The neutral conductor of the AC output in operation without an external AC power source (off-grid) is bonded to the power station's frame. When powered by an external AC power source, the AC output provides the same network as the external AC power source. The external AC power source is connected through.

AC OUTPUT SOCKETS

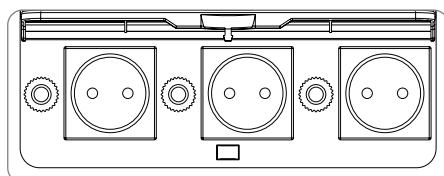
The KS 3000PS solar power station has 4 x 230VAC sockets on the front for direct power supply to individual devices. Connecting distribution boards without additional safety measures is prohibited.



The sockets in battery mode (Off-grid) provide an IT network with an isolated neutral conductor. The sockets in operation from an external AC power source provide the same network as the external AC power source.

The protective contacts in the sockets are connected to each other and to the power station frame, providing protection through equipotential bonding in battery operation (IT system).

The KS 5200PS solar power station has 3 x 230VAC sockets on the front for direct power supply to individual devices. Connecting distribution boards without additional safety measures is prohibited.



The neutral conductor of the socket (left) is connected to the power station's frame when operating without external AC source (Off-grid). When powered by an external AC power source, the socket supplies the same AC voltage as the external AC power source.

The PE contacts in the sockets are connected to each other and to the power station's frame. All sockets are protected by a residual current device (RCD) located on the rear of the power station. Each socket is equipped with thermal overload protection.

AC INPUT KS 3000PS

The KS 3000PS model has the AC input with the Type C19 coupling, which can withstand the rated power of the KS 3000PS over the long time. The supplied power cable has the Type C20 plug on the device side and the Schuko CEE 7/7 (Type E/F) on the other side.

To ensure that the assignment of N and L on the AC terminal output of the power station is correct even when operating from the public power grid, the pin assignment in the power socket must comply with European standards.

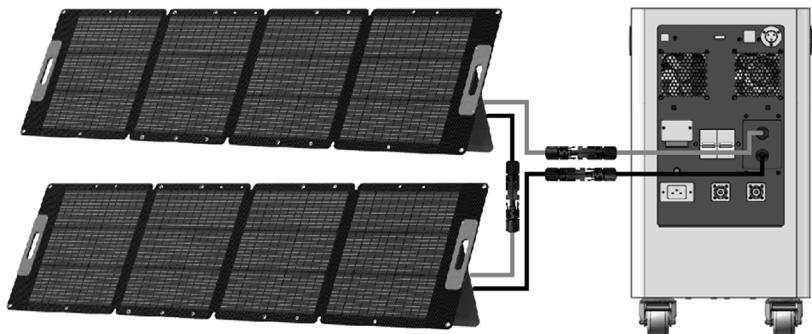
The L conductor should be on the right in the socket so that it also comes to the C19 a coupling on the right of the KS 3000PS.

CONNECTING PV MODULES

The open circuit voltage of the solar array connected to the PV input (Voc) must not exceed the maximum 160VDC for the KS 3000PS model and 450VDC for the KS 5200PS model.

The voltage of the solar field under load should be in the range 30-128VDC for the KS 3000PS and 150-430V for the KS 5200PS.

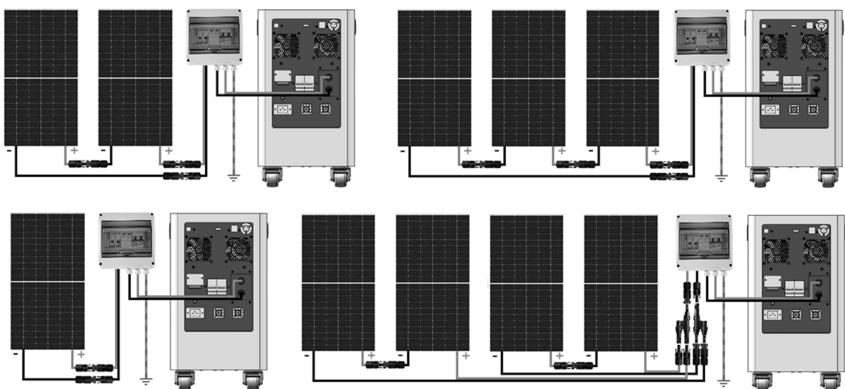
The solar power station KS 3000PS has a low-voltage PV input and can also be used mobile. Since most portable solar modules have an output voltage of less than 30V, 2 modules must be connected in series so that the output voltage of the solar field is in the permissible MPPT voltage range of the KS 3000PS.



The solar power stations KS 3000PS and KS 5200PS do not have a built-in DC switch.

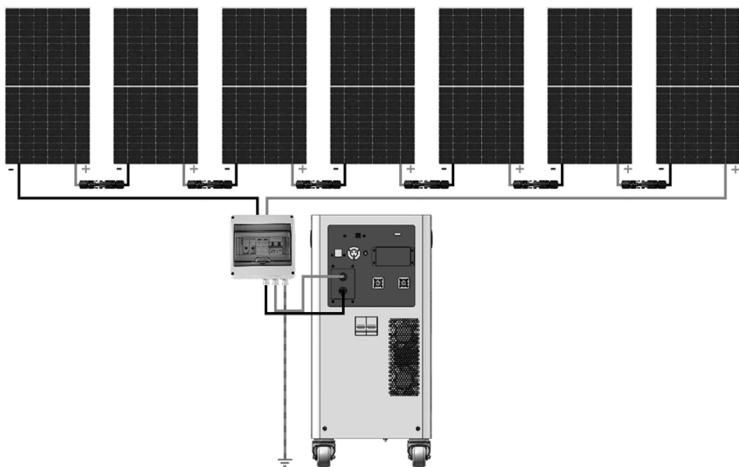
Permanently installed solar fields (PV systems) should be connected via an external DC switch. Overvoltage and lightning protection must be installed according to local regulations.

Examples of the circuit of permanently installed solar panels for KS 3000PS:



Most solar modules for fixed installation have an output voltage of over 30V and you can use the KS 3000PS even with 1 module. The total maximum output of the solar module must not exceed the output of the PV input by more than 25%. It is not recommended to connect more than 4 solar modules to avoid overloading the PV inputs.

The KS 5200PS solar power station has a high-voltage PV input with MPPT range 150-430V. We therefore recommend using 6 to 12 solar modules with an open circuit voltage of up to 37V. Adjust the number of solar modules depending on the open circuit voltage so that the total open circuit voltage of the solar field does not exceed 450V.



Model	KS 3000PS	KS 5200PS
Max. PV Array Open Circuit Voltage	160VDC	450VDC
PV Array MPPT Voltage Range	30–128VDC	150–430VDC
MPPT Number	1	

PV PANEL CONNECTION



CAUTION!



Before connecting to PV modules, please install separately a DC switch between unit and PV modules.



WARNING!



All wiring must be performed by a qualified personnel.

CONNECTING AN EXTERNAL DC POWER SOURCE (VERSION WITH DC INPUT)

The latest versions of the solar power station have DC connections for external DC power sources.

Permissible voltage range for KS 3000PS: 24–28.4VDC. Maximum current for KS 3000PS: 120A.

Permissible voltage range for KS 5200PS: 48–56.8VDC. Maximum current for KS 5200PS: 100A.

You can connect either a suitable additional battery from König & Söhnen (LiFePo4 with a nominal voltage of 25.6V for KS 3000PS or LiFePo4 with a nominal voltage of 51.2V for KS 5200PS), or a DC charging current source such as the direct current generator from König & Söhnen (the KS 24V-DC series for KS 3000PS, the KS 48V-DC series for KS 5200PS) or an external charging controller suitable for the battery installed internally in the power station in order to be able to connect additional solar panels to the DC input.

Additional batteries with the same parameters as those installed internally (LiFePo4 25.6V for KS 3000PS or LiFePo4 51.2V for KS 5200PS) from Könner & Söhnen can also be connected to the DC input. Connecting the external battery in parallel with the internal battery is only possible if the charge level of the two batteries does not differ by more than 20%. If the charge level differs by more than 20%, only one battery should be used (just switch on the corresponding DC breaker). If both batteries are to be charged, the battery with the lower charge level must be activated first. If the load is to be supplied, the battery with the higher charge level must be activated. This is necessary to avoid excessive overflow currents between the two batteries.

No DC power consumers or external power supplies may be connected to the DC input! We do not accept any liability for defects or consequential damages resulting from connecting batteries, charging controllers or other devices from third-party manufacturers.

To connect additional solar panels to the solar power station (e.g. you want to install another pair of solar panels on another side of the roof and connect them to the KS 5200PS), you must use an external charge controller, which can be connected directly to the DC connections for external DC power sources. Through these connections, the energy is supplied to the 48V power rail (KS 5200PS) with the permissible voltage range 48-56.8V or to the 24V power rail (KS 3000PS) with the permissible voltage range 24-28.4V. The DC breaker of the internal battery and the DC breaker of the external DC power source should be switched on if you are not using an external battery.

NEUTRAL CONDUCTOR MANAGEMENT

External AC power source is all-pole switched through to the AC output while it is used to charge the battery or to supply the load and is all-pole switched off in off-grid operation.

The KS 3000PS is built as a portable power source as an IT system, where both active conductors are isolated from the housing. The KS 3000PS has no fixed L and N in off-grid operation.

The KS 5200PS is designed for stationary operation with a HV solar field. The N conductor of the KS 5200PS in off-grid mode is connected to the housing and the power station must be earthed either via the PE connections on the AC input/output or via the earth connection on the housing. If a generator is to be used as an AC power source, it must have an earthed neutral conductor if a TN network is also required when the generator is operating.

Sample solutions can be found in our information material on the website or can be obtained upon request from technical support.

SETTINGS OF THE SOLAR POWER STATION

Access to the settings of the KS 3000PS and KS 5200PS power stations is possible using the SolarPowerMonitor software via the external computer.

Download the Solar Power Monitor software using the link provided by the manufacturer. After unpacking, you will find 4 files:

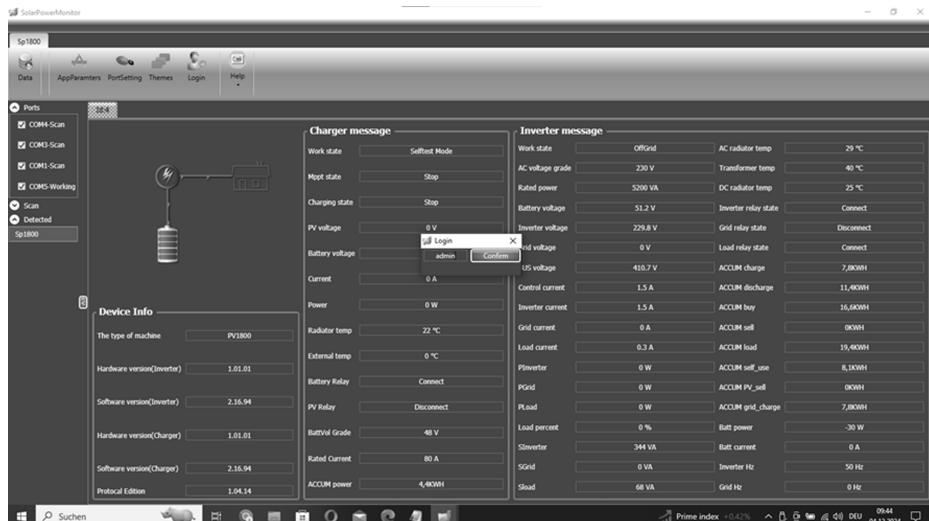
 CH341SER	07.04.2017 06:18	Anwendung	238 KB
 CP210x_VCP_Win7_8	25.10.2009 10:59	Anwendung	5 364 KB
 readme	19.09.2018 09:01	Textdokument	1 KB
 SolarPowerMonitor	28.09.2018 04:10	Anwendung	65 149 KB

First you have to install the first 2 files so that the drivers necessary for communication via USB are installed.

The SolarPowerMonitor program is installed in the second step. The power station is connected to the computer's USB port using the cable provided. The end of the cable with USB Type A goes into the computer and the end with USB Type B goes into the USB port of the power station.

After starting, SolarPowerMonitor searches for connected power stations.

As soon as the connected power station is found, the window with the current status of the power station appears. To get full access to the settings, you have to log in with the password "admin":



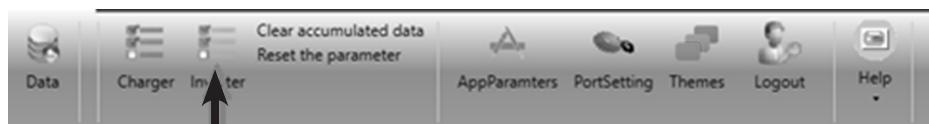
Charger message

Work state	Sellout Mode
Mppt state	Stop
Charging state	Stop
PV voltage	6 V
Battery voltage	admin [Confirm]
Current	0 A
Power	0 W
Radiator temp	22 °C
External temp	0 °C
Battery Relay	Connect
PV Relay	Disconnect
BattVol Grade	40 V
Rated Current	80 A
ACOM power	4,800Wh

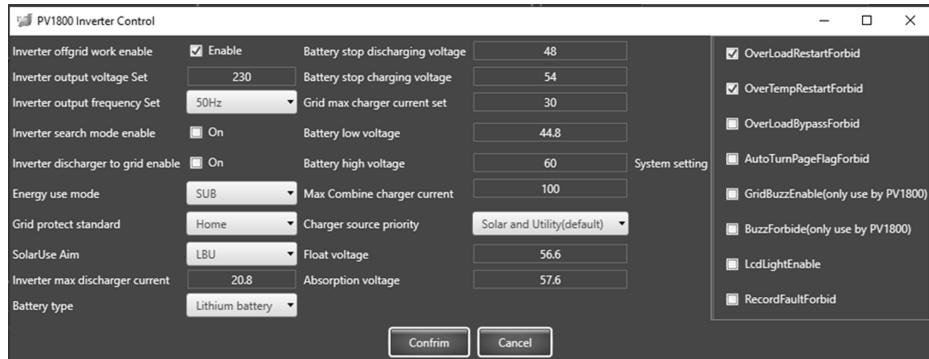
Inverter message

Work state	OffGrid	AC radiator temp	29 °C
AC voltage grade	230 V	Transformer temp	40 °C
Rated power	5200 VA	DC radiator temp	25 °C
Battery voltage	51.2 V	Inverter relay state	Connect
Inverter voltage	229.9 V	Grid relay state	Disconnect
Grid voltage	0 V	Load relay state	Connect
US voltage	40.0 V	ACOM1 charge	7,800Wh
Control current	1.5 A	ACOM1 discharge	11,400Wh
Inverter current	1.5 A	ACOM1 buy	16,000Wh
Grid current	0 A	ACOM1 sell	0Wh
Load current	0.3 A	ACOM1 load	19,400Wh
Inverter	0 W	ACOM1_use	8,100Wh
Grid	0 W	ACOM_PV_sell	0Wh
PLoad	0 W	ACOM_Pnd_charge	7,800Wh
Load percent	0 %	Batt power	-30 W
Inverter	344 VA	Batt current	0 A
Grid	0 VA	Inverter Hz	50 Hz
Stad	68 VA	Grid Hz	0 Hz

Access to the inverter settings is now available:



Inverter



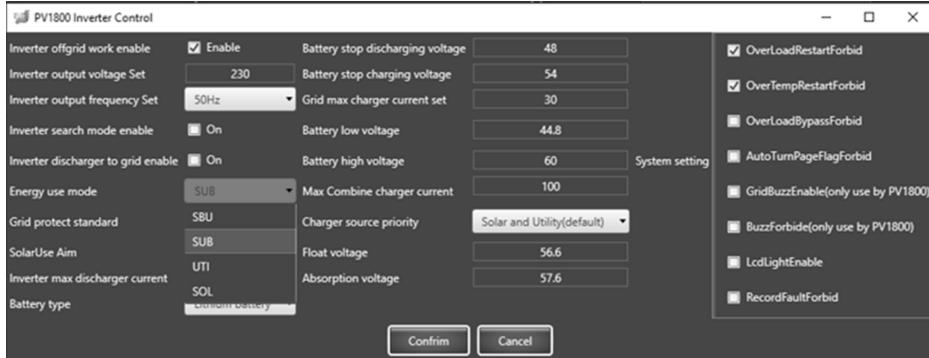
PV1800 Inverter Control

Inverter offgrid work enable	<input checked="" type="checkbox"/> Enable	Battery stop discharging voltage	48
Inverter output voltage Set	230	Battery stop charging voltage	54
Inverter output frequency Set	50Hz	Grid max charger current set	30
Inverter search mode enable	<input type="checkbox"/> On	Battery low voltage	44.8
Inverter discharger to grid enable	<input type="checkbox"/> On	Battery high voltage	60
Energy use mode	SUB	Max Combine charger current	100
Grid protect standard	Home	Charger source priority	Solar and Utility(default)
SolarUse Aim	LBU	Float voltage	56.6
Inverter max discharger current	20.8	Absorption voltage	57.6
Battery type	Lithium battery	System setting	

OverLoadRestartForbid
 OverTempRestartForbid
 OverLoadBypassForbid
 AutoTurnPageFlagForbid
 GridBuzzEnable(only use by PV1800)
 BuzzForbid(only use by PV1800)
 LcdLightEnable
 RecordFaultForbid

Confirm **Cancel**

ENERGY USE MODES



PV1800 Inverter Control

Inverter offgrid work enable	<input checked="" type="checkbox"/> Enable	Battery stop discharging voltage	48
Inverter output voltage Set	230	Battery stop charging voltage	54
Inverter output frequency Set	50Hz	Grid max charger current set	30
Inverter search mode enable	<input type="checkbox"/> On	Battery low voltage	44.8
Inverter discharger to grid enable	<input type="checkbox"/> On	Battery high voltage	60
Energy use mode	SUB	Max Combine charger current	100
Grid protect standard	SBU	Charger source priority	Solar and Utility(default)
SolarUse Aim	SUB	Float voltage	56.6
Inverter max discharger current	UTI	Absorption voltage	57.6
Battery type	SOL	System setting	

OverLoadRestartForbid
 OverTempRestartForbid
 OverLoadBypassForbid
 AutoTurnPageFlagForbid
 GridBuzzEnable(only use by PV1800)
 BuzzForbid(only use by PV1800)
 LcdLightEnable
 RecordFaultForbid

Confirm **Cancel**

SUB (preset at KS 5200PS)

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. The battery energy will supply power to the loads only in condition of the utility is unavailable. If the solar is unavailable, the utility will charge the battery until the battery voltage reaches the setting point "Battery stop charging voltage". If the solar is available, but the voltage is lower than "Battery stop discharging voltage", the utility will charge the battery until the battery voltage reaches the "Battery stop discharging voltage" to protect the battery.

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 the battery voltage drops to either low-level warning voltage or the setting "Battery stop discharging voltage" or solar and battery is not sufficient. The battery energy will supply power to the loads only in condition of the utility is unavailable or the battery voltage is higher than the point "Battery stop charging voltage" (when BLU is selected) or the point "Battery stop discharging voltage" (when LBU is selected). If the solar is available, but the voltage is lower than "Battery stop discharging voltage", the utility will charge the battery until the battery voltage reaches the "Battery stop discharging voltage" to protect the battery.

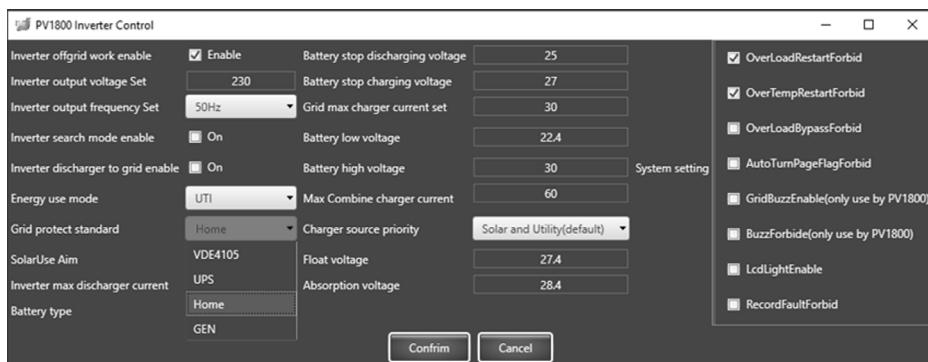
SOL

Solar energy provides power to the loads as first priority. If battery voltage has been higher than the setting point "Battery stop charging voltage" for 5 minutes and the solar energy is available for 5 minutes too, the inverter will turn to battery mode, solar and battery will provide power to the loads at the same time. When the battery voltage drops to the setting point "Battery stop discharging voltage", the inverter will turn to bypass mode, utility provides power to the load only, and the solar will charge the battery at the same time.

UTI (preset at KS 3000PS)

Utility provides power to the loads as first priority. Solar and battery energy will provide power to the loads only when utility power is not available.

GRID PROTECT STANDARD



VDE4105

If selected, acceptable AC input voltage range will conform to VDE-AR-N 4105 (184VAC-253VAC).

UPS

If selected, acceptable AC input voltage range will be within 170-280VAC.

HOME

If selected, acceptable AC input voltage range will be within 90- 280VAC.

GEN

When the user uses the device to connect the AC generator, select the generator mode. When using an inverter generator, other settings may also be used (VDE4105, UPS, HOME), because inverter generators deliver a sinusoidal voltage that is comparable to the voltage from the public power grid.

CHARGER SOURCE PRIORITY

PV1800 Inverter Control

Inverter offgrid work enable	<input checked="" type="checkbox"/> Enable	Battery stop discharging voltage	25
Inverter output voltage Set	230	Battery stop charging voltage	27
Inverter output frequency Set	50Hz	Grid max charger current set	30
Inverter search mode enable	<input type="checkbox"/> On	Battery low voltage	22.4
Inverter discharger to grid enable	<input type="checkbox"/> On	Battery high voltage	30
Energy use mode	UTI	Max Combine charger current	60
Grid protect standard	Home	Charger source priority	Solar and Utility(default)
SolarUse Aim	LBU	Float voltage	Solar first
Inverter max discharger current	13.6	Absorption voltage	Solar and Utility(default)
Battery type	Lithium battery		Only Solar

System setting

OverLoadRestartForbid
 OverTempRestartForbid
 OverLoadBypassForbid
 AutoTurnPageFlagForbid
 GridBuzzEnable(only use by PV1800)
 BuzzForbide(only use by PV1800)
 LcdLightEnable
 RecordFaultForbid

Confirm **Cancel**

SOLAR FIRST

Solar energy will charge battery as first priority. Utility will charge battery only when solar energy is not available. Please note the energy use mode settings.

SOLAR AND UTILITY

Solar energy and utility will charge battery at the same time. Please note the energy use mode settings.

ONLY SOLAR

Solar energy will be the only charger source no matter utility is available or not.

SOLAR SUPPLY PRIORITY

PV1800 Inverter Control

Inverter offgrid work enable	<input checked="" type="checkbox"/> Enable	Battery stop discharging voltage	25
Inverter output voltage Set	230	Battery stop charging voltage	27
Inverter output frequency Set	50Hz	Grid max charger current set	30
Inverter search mode enable	<input type="checkbox"/> On	Battery low voltage	22.4
Inverter discharger to grid enable	<input type="checkbox"/> On	Battery high voltage	30
Energy use mode	UTI	Max Combine charger current	60
Grid protect standard	Home	Charger source priority	Solar and Utility(default)
SolarUse Aim	LBU	Float voltage	27.4
Inverter max discharger current	LBU	Absorption voltage	28.4
Battery type	BLU		

System setting

OverLoadRestartForbid
 OverTempRestartForbid
 OverLoadBypassForbid
 AutoTurnPageFlagForbid
 GridBuzzEnable(only use by PV1800)
 BuzzForbide(only use by PV1800)
 LcdLightEnable
 RecordFaultForbid

Confirm **Cancel**

LBU

Solar energy provides power to the loads as first priority.

BLU

Solar energy provides power to charge battery as first priority.

DRY CONTACTS FOR GENERATOR CONTROL AND FOR EXTERNAL AUTOMATIC TRANSFER SWITCH

The KS 3000PS and KS 5200PS solar power stations have separate dry contacts for generator control (left in the image below) and for controlling an external automatic transfer switch (right in the image below):



These potential-free dry contacts are switching groups of two separate relays, with different operating principles and different preset threshold values.

They are galvanically isolated from the power station and can switch up to 3 A 50 VDC or 3 A 250 AC.

Function of the potential-free dry contacts for generator control:

Operating status	Battery voltage	NC & COM	COM & NO
The powerstation off	any value	open	closed
The powerstation on	Lower than 27V (KS 3000PS) or 54V (KS 5200PS)	closed	open
	Reaching 27V (KS 3000PS) or 54V (KS 5200PS)	open	closed
	Higher than 24V (KS 3000PS) or 49V (KS 5200PS)	open	closed
	Lower than 27V (KS 3000PS) or 54V (KS 5200PS)	closed	open

The control terminal contacts of the generator's 2-pin control by external devices (not to be confused with the ATS connector) are connected via a cable (not supplied) to the NC and C (COM) contacts of the corresponding power station connector.

The NC and COM contacts are closed as soon as the power station is switched on to charge the battery up to 27V for the KS 3000PS or 54V for the KS 5200PS.

These contacts then open and remain open until the battery voltage drops below 24V for the KS 3000PS or 49V for the KS 5200PS.

The NC and COM contacts close again after the battery voltage falls below 24V for the KS 3000PS or 49V for the KS 5200PS to recharge the battery.

This process repeats in a cycle to ensure an uninterrupted power supply.



NOTE



Battery voltage may drop slightly under load, causing the generator to start sooner than under lighter loads.

Preset settings for KS 3000PS:

Generator start voltage	24
Generator stop voltage	27

Preset settings for KS 5200PS:

Generator start voltage	49
Generator stop voltage	54

FUNCTION OF THE DRY CONTACTS FOR CONTROLLING AN EXTERNAL AUTOMATIC TRANSFER SWITCH (ATS):

The KS 3000PS and KS 5500PS solar power stations have control contacts for an external transfer switch that switches certain electrical loads to the power station as soon as the battery voltage reaches the "Battery stop charging voltage" value. This would be useful for smaller solar fields where the solar power station is primarily used as a backup in case of a power outage, but where solar energy is still desired once the battery is charged. This allows the solar power station to be used as both a backup and an occasional energy source without significant investment, thus saving on electricity costs.

The switching of electrical loads to the power station should be all-pole, similar to emergency power supply, so that the power station simply takes over the power supply and does not operate in parallel with the public power grid.

Such operation generally does not require approval from the grid operator. However, it is important that the automatic transfer switch switches all poles (L and N) and ensures a safe separation.

Operating status	Battery voltage	NC & COM	COM & NO
The powerstation off	any value	closed	open
The powerstation on	Lower than "Battery stop charging voltage"	closed	open
	Reaching "Battery stop charging voltage"	open	closed
	Higher than "Battery stop discharging voltage"	open	closed
	Lower than "Battery stop discharging voltage"	closed	open

Preset settings for KS 3000PS:

Battery stop discharging voltage	25
Battery stop charging voltage	27

Preset settings for KS 5200PS:

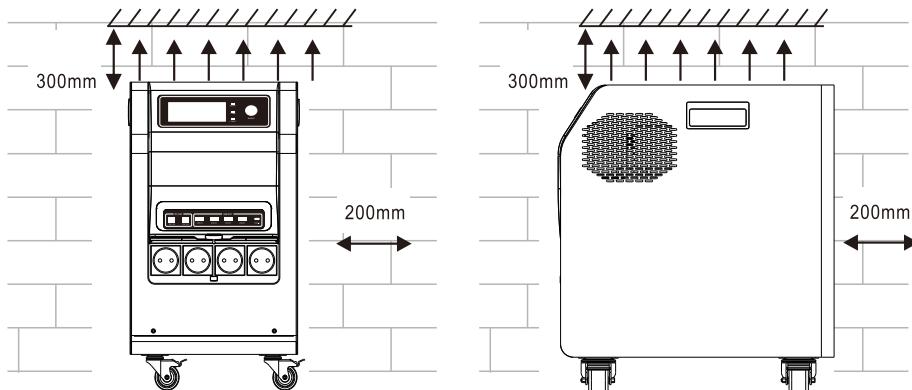
Battery stop discharging voltage	51
Battery stop charging voltage	54

Examples of the use of the solar power stations KS 3000PS and KS 5200PS can be found on the manufacturer's website or are available upon request from technical support.

OPERATION

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Before turning on the device, please reserve a distance of more than 300mm above the device and 200mm to the left and right to ensure for heat dissipation. To ensure the best operation, the ambient temperature should be between 0-40 °C.

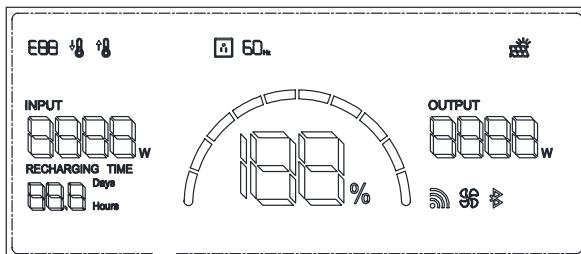


OPERATION AND DISPLAY PANEL

The operation and display panel shown as below includes 3 LED indicators, an ON/OFF switch and a LCD display, indicating the operation status of device.

LCD display	Status indicator		
ON/OFF	Charging indicator		
Fault indicator			
LED INDICATOR			
LED Indicator	Messages		
AC/INV	Green	Solid On	The AC output is supplied by the external AC power source.
		Flashing	The AC output is supplied by the inverter module.
CHG	Yellow	Flashing	Battery is charging (charge or floating).
FAULT	Red	Solid On	An error has occurred.
		Flashing	Warning about abnormal function.

LCD DISPLAY ICONS



Icon	Description
	AC input - The device is connected to an external AC power source.
	PV input - A solar array is connected to the PV input.
	Output Frequency - Indicates output frequency (50/60Hz) of the device.
	Error code - Indicates the error occurred inside the device.
	Low Temperature Warning - The internal temperature of the battery is lower than the warning temperature.
	High Temperature Warning - The internal temperature of the battery is higher than the warning temperature.
	Input Power - Indicates the total input power including AC input and PV input.
	Output Power - Indicates the AC load power.
	Battery Power Percentage - Indicates the real-time percentage of the battery, and the 10-bar lights indicate the power of 5%,15%,25%,35%,45%,55%, 65%,75%,85%,95%.
	Recharging Time - When the battery is recharging , this icon will display.
	Remaining Time - When the battery is discharging, this icon indicates the remaining usage time under current load condition. When the battery is recharging, this icon indicates the recharging time under current charging condition.

Fault Code	Fault Cause
01	Fan is locked when inverter is off.
02	Inverter transformer over temperature.
03	Battery voltage is too high.
04	Battery voltage is too low.
05	Output short circuited.
06	Inverter output voltage is high.
07	Overload time out.
08	Inverter bus voltage is too high.
09	Bus soft start failed.
11	Main relay failed.
21	Inverter output voltage sensor error.
22	Inverter grid voltage sensor error.
23	Inverter output current sensor error.
24	Inverter grid current sensor error.
25	Inverter load current sensor error.
26	Inverter grid over current error.
27	Inverter radiator over temperature.
31	Solar charger battery voltage class error.
32	Solar charger current sensor error.
33	Solar charger current is uncontrollable.
41	Inverter grid voltage is low.
42	Inverter grid voltage is high.
43	Inverter grid under frequency.
44	Inverter grid over frequency.
51	Inverter over current protection error.
52	Inverter bus voltage is too low.
53	Inverter soft start failed.
55	Over DC voltage in AC output.
58	Inverter output voltage is too low.



EC Declaration of Conformity

Nr. 200

The following products have been tested by us with the listed standards and found in compliance with the European Community Electromagnetic compatibility Directive (EMC) 2014/30/EC, Low Voltage Directive 2014/35/EC.

Manufacturer: DIMAX INTERNATIONAL GmbH

Address: Flinger Broich 203, 40235 Duesseldorf, Germany

Product: Portable power station "Könner & Söhnen"

Type / Model: KS 3000PS, 5200PS

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: 2014/30/EC Electromagnetic compatibility Directive (EMC)
2014/35/EU Low Voltage

Applied Standards: EN 62109-1:2010
EN 62109-2:2011
EN IEC62109-1:2010
EN IEC62109-1:2011
EN IEC61000-6-1:2019
EN IEC61000-6-3:2021

CE
23

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Director:

Fomin P.

P. Fomin

DIMAX

International GmbH
Flinger Broich 203 40235 Düsseldorf
UST-ID DE296177274
koenner-soehnen.com

We DIMAX INTERNATIONAL GmbH hereby declare that specified above conforms covering European Parliament and Council Directives, 2014/35/EC Low Voltage Directive of 26 February 2014, 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.

CONTACTS

Deutschland:

Hergestellt unter Lizenz und Kontrolle der
DIMAX International GmbH.

Importeur und Vertreter in Deutschland:

DIMAX International GmbH, Flinger Broich 203,
40235 Düsseldorf, Deutschland. Produziert in VRC.

amazon@dimaxgroup.com

www.konner-sohnen.com

European Union:

Manufactured under license and control of DIMAX
International GmbH, Flinger Broich 203, 40235
Düsseldorf, Germany.

Importer and representative in Netherlands DIMAX
International Poland Ltd, Południowa 8 st,

05-830 Stara Wieś, Poland. Assembled in PRC.

amazon@dimaxgroup.com

www.konner-sohnen.com

The United Kingdom:

Innovation Trade Ltd, 63/66 Hatton Garden Fifth Floor,
Suite 23, London, EC1N 8LE, info.uk@dimaxgroup.de

Technical support

support.uk@dimaxgroup.de

www.konner-sohnen.uk

France:

Fabriqué sous licence et contrôle de DIMAX
International GmbH, Flinger Broich 203, 40235
Düsseldorf, Allemagne.

Importateur et représentant en France et en Belgique
DIMAX International Poland Ltd, Południowa 8 st,

05-830 Stara Wieś, Pologne. Assemblé en RPC.

innovationtrade8@gmail.com

www.konner-sohnen.fr

España:

Fabricado bajo licencia y control de DIMAX
International GmbH, Flinger Broich 203, 40235
Düsseldorf, Alemania.

Importador y representante en España de DIMAX
International Poland Ltd, Południowa 8 st,

05-830 Stara Wieś, Polonia.

Ensamblado en la República Popular China.

amazon@dimaxgroup.com

www.konner-sohnen.es

Polska:

Wyprodukowano na licencji i pod kontrolą DIMAX
International GmbH, Flinger Broich 203,
40235 Düsseldorf, Niemcy.

Importer i przedstawiciel w Polsce:

DIMAX International Poland Sp.z o. o. ul. Południowa 8,
05-830 Stara Wieś, Polska. Zmontowany w CRL.

amazon@dimaxgroup.com

www.konner-sohnen.pl

Україна:

Виготовлено за ліцензією та під контролем
DIMAX International GmbH, Flinger Broich 203,
40235 Дюссельдорф, Німеччина.

Імпортер та представник в Україні:

ТОВ "ТЕХНО ТРЕЙД КС" вул. Електротехнічна 47,
02225, м. Київ, Україна. Змонтовано в КНР

www.konner-sohnen.com.ua