Digitalized product

DARDA® challenge power

Designed for broadcasting and communications, this equipment is a high quality/high performance product with FCC(EMC/EMI)(US)/KC(EMC/EMI)(KOREA) Certification or an equivalent quality.

For an efficient operation, be sure to read this manual fully prior to use.

Operation Manual

■ Contents

Operation Manual Procedure and Basic Data

Contents

Specifications (1000W-DC12V DC24V DC48V 220Vac)

NO.	PARAMETER		DK1210	DK2410	DK4810
1	DC input voltage		13.2V (10.5V~16.0V)	26.4V (21.0V~30.0V)	52.8V (42.0V~59.0V)
2	Output voltage no load		225Vac (±3%)		
3	Output power continuous		1000W (±3%)		
4	Surge rating		2000W (±3%)		
5	Efficiency[output]		91% (±3%)		
6	No load current	no fan	0.66A (±0.1A)	0.42A (±0.1A)	0.25A (±0.3A)
		on fan	0.84A (±0.1A)	0.54A (±0.1A)	0.34A (±0.5A)
7	Low battery shut down		10.2V (±0.5V)	19.8V (±1.0V)	40.2V (±1.0V)
8	Low battery return on power		11.2V (±0.5V)	22.2V (±0.5V)	42.5V (±0.5V)
9	High battery shut down		17.2V (±1.0V)	31.3V (±1.0V)	60.9V (±1.0V)
10	High battery return on power		15.4V (±0.5V)	29.5V (±1.0V)	58.8V (±1.0V)
11	Frequency selection[50hz/60hz]		50hz/60hz selection (±0.8hz)		
12	Regulation		1200W/223Vac		
13	Over temperature protection		-25℃~74℃ (78℃±5℃)		
14	Over temperature power on		58℃ (±5℃)		
15	Output wave form		Pure sine wave (30khz±2khz)		
16	Cooling fan [auto fan]		Fan on temperature 41℃ (±5℃)		
17	Insulation transformer tester Withstand voltage		2KV~2.5KV (±0.5KV)		
18	(Over load protection)	input sensor			
		input fuse	40A(2EA)30A(1EA)	30A(2EA)	30A(1EA)
		output sensor	OK (20A)		
		output circuit breaker	6A (fuse)		
		AC outlet	2 socket/15A		
19	FCC EMI/EMC		FCC part 15 sub part B class A		
20	KC EMI/EMC				
21	Products blocking noise control		OK Pass (input high voltage)		
22	Dimensions[mm] Weight[kg]		D195 X H89 X W290mm 3.4Kg		

▶ Applicable Equipment

Precision test equipment, precision medical equipment, precision audio and video equipment, solar lamps, mercury / Halogen / HQI lamps, non-linear load [motor / coil, etc.], other electrical or electronic equipment, and equipment which could experience malfunction due to similar step form waves

☞ The product specifications may be changed without notice for the improvement of performance.

Specifications (1500W/2000W/3000W-DC12V DC24V DC48V 220Vac)

NO.	PARAMETER		DK1215	DK2415	DK4815	DK1220	DK2420	DK4820	DK1230	DK2430	DK4830
1	DC input voltage		13.2V (10.5V~16.0V)	26.4V (21.0V~30.0V)	52.8V (41.0V~59.0V)	13.2V (10.5V~16.0V)	26.4V (21.0V~30.0V)	52.8V (41.0V~59.0V)	13.2V (10.5V~16.0V)	26.4V (21.0V~30.0V)	52.8V (41.0V~59.0V)
2	Output voltage no load		225Vac (±3%)								
3	Output power continuous		1500W (±3%)			2000W (±3%)			3000W (±3%)		
4	Surge rating		3000W (±3%)			4000W (±3%)			6000W (±3%)		
5	Efficiency[output]		91% (±3%)								
6	No load current	no fan	1.10A (±0.15A)	0.70A (±0.1A)	0.35A (±0.3A)	1.20A (±0.15A)	0.74A (±0.1A)	0.45A (±0.3A)	1.20A (±0.15A)	0.74A (±0.1A)	0.48A (±0.3A)
		on fan	1.52A	0.89A (±0.1A)	0.47A (±0.5A)	1.62A	0.95A (±0.1A)	0.67A (±0.5A)	2.00A	1.20A (±0.1A)	0.80A (±0.5A)
7	Low battery shut down		10.2V (±0.5V)	19.8V (±1.0V)	40.2V (±1.0V)	10.2V (±0.5V)	20.0V (±1.0V)	40.2V (±1.0V)	10.2V (±0.5V)	20.0V (±1.0V)	40.2V (±1.0V)
8	Low battery return on power		11.2V (±0.5V)	22.2V (±0.5V)	42.5V (±0.5V)	11.2V (±0.5V)	22.4V (±0.5V)	42.5V (±0.5V)	11.2V (±0.5V)	22.4V (±0.5V)	42.5V (±0.5V)
9	High battery shut down		17.2V (±1.0V)	31.3V (±1.0V)	60.9V (±1.0V)	17.2V (±1.0V)	31.7V (±1.0V)	60.9V (±1.0V)	17.2V (±1.0V)	31.7V (±1.0V)	60.9V (±1.0V)
10	High battery return on power		15.4V (±0.5V)	29.5V (±1.0V)	58.8V (±1.0V)	15.2V (±0.5V)	30.0V (±1.0V)	58.8V (±1.0V)	15.2V (±0.5V)	30.0V (±1.0V)	58.8V (±1.0V)
11	Frequency selection[50hz/60hz]		50hz/60hz selection (±0.8hz)								
12	Regulation		1900W/223Vac			2500W/223Vac			3500W/223Vac		
13	Over temperature protection		-25℃~74℃ (78℃±5℃)								
14	Over temperature power on		58℃ (±5℃)								
15	Output wave form		Pure sine wave (30khz±2khz)								
16	Cooling fan [auto fan]		Fan on temperature 44℃ (±5℃)								
17	Insulation transformer tester Withstand voltage		2KV~2.5KV (±0.5KV)								
18	(Over load protection)	input sensor	OK (100A)								
		input fuse	40A(4EA)	40A(2EA)	40A(1EA)	40A(6EA)	40A(4EA)	30A(2EA)	40A(10EA)	40A(5EA)	30A(3EA)
		output sensor	OK (20A)								
		output circuit breaker	8A (fuse)			10A~15A HS	15A~18A HS (high speed)		18A~20A HS (high speed)		
		AC outlet	2 socket(3P)/15A			2 socket(3P)/15A~18A					
19	FCC EMI/EMC		FCC part 15 sub part B class A								
20	KC EMI/EMC			OK			OK				
21	Products blocking noise control		OK Pass (input high voltage)								
22	Dimensions[mm] Weight[kg]		D195 X H89 X W365mm 4.4Kg			D225 X H89 X W420mm 5.5Kg			D225 X H89 X W520mm 7.3Kg		

▶Applicable Equipment

Precision test equipment, precision medical equipment, precision audio and video equipment, solar lamps, mercury / Halogen / HQI lamps, non-linear load [motor / coil, etc.], other electrical or electronic equipment, and equipment which could experience malfunction due to similar step form waves

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Specifications (5000W/6000W/8000W-DC12V DC24V DC48V 220Vac)

NO.	PARAMETER		DK1250	DK2450	DK4850	DK1260	DK2460	DK4860	DK1280	DK2480	DK4880
1	DC input voltage		13.4V (10.5V~16.0V)	26.8V (21.0V~30.0V)	53.6V (41.0V~59.0V)	13.4V (10.5V~16.0V)	26.8V (21.0V~30.0V)	53.6V (41.0V~59.0V)	13.4V (10.5V~16.0V)	26.8V (21.0V~30.0V)	53.6V (41.0V~59.0V)
2	Output voltage no load		225Vac (±3%)								
3	Output power continuous		5000W (±3%)			6000W (±3%)			8000W (±3%)		
4	Surge rating		10000W (±3%)			12000W (±3%)			16000W (±3%)		
5	Efficiency[output]		90% (±3%)								
6	No load current	no fan	1.6A (±0.15A)	0.8A (±0.1A)	0.68A (±0.15A)	1.8A (±0.15A)	1.0A (±0.1A)	0.7A (±0.15A)	2.2A (±0.15A)	1.0A (±0.1A)	0.45A (±0.3A)
		on fan	2.8A (±0.2A)	1.58A (±0.1A)	1.07A (±0.15A)	3.64A (±0.2A)	2.28A (±0.1A)	1.22A (±0.15A)	3.84A (±0.2A)	2.28A (±0.1A)	0.67A (±0.5A)
7	Low battery shut down		10.2V (±0.5V)	20.0V (±1.0V)	40.2V (±1.0V)	10.2V (±0.5V)	20.0V (±1.0V)	40.2V (±1.0V)	10.2V (±0.5V)	20.0V (±1.0V)	40.2V (±1.0V)
8	Low battery return on power		11.2V (±0.5V)	22.4V (±0.5V)	42.5V (±0.5V)	11.2V (±0.5V)	22.4V (±0.5V)	42.5V (±0.5V)	11.2V (±0.5V)	22.4V (±0.5V)	42.5V (±0.5V)
9	High battery shut down		17.2V (±1.0V)	31.7V (±1.0V)	60.9V (±1.0V)	17.2V (±1.0V)	31.7V (±1.0V)	60.9V (±1.0V)	17.2V (±1.0V)	31.7V (±1.0V)	60.9V (±1.0V)
10	High battery return on power		15.4V (±0.5V)	30.0V (±1.0V)	58.8V (±1.0V)	15.2V (±0.5V)	30.0V (±1.0V)	58.8V (±1.0V)	15.2V (±0.5V)	30.0V (±1.0V)	58.8V (±1.0V)
11	Frequency selection[50hz/60hz]		50hz/60hz selection (±0.8hz)								
12	Regulation		5500W/222Vac			6500W/222Vac			8500W/222Vac		
13	Over temperature protection		-25℃~74℃ (78℃±5℃)								
14	Over temperature power on		58℃ (±5℃)								
15	Output wave form		Pure sine wave (30khz±2khz)								
16	Cooling fan [auto fan]		Fan on temperature 44℃ (±5℃)								
17	Insulation transformer tester Withstand voltage		2KV~2.5KV (±0.5KV)								
18	(Over load protection)	input sensor	OK (100A)								
		input fuse	40A(14EA)	40A(6EA)/30A(6EA)	40A(4EA)	40A(16EA)	40A(8EA)/30A(2EA)	30A(6EA)	40A(20EA)	40A(10EA)/30A(2EA)	30A(2EA)
		output sensor	OK (20A*2EA)								
		output circuit breaker	25A~30A	25A HS	25A~30A HS	32A~35A HS (high speed)			40A~45A HS (high speed)		
		AC outlet / terminal	2 socket(3P)/15A~18A/3P 30A						2 socket(3P)/15A~18A/3P 50A~60A		
19	FCC EMI/EMC		FCC part 15 sub part B class A								
20	KC EMI/EMC										
21	Products blocking noise control		OK Pass (input high voltage)								
22	Dimensions[mm] Weight[kg]		D225 X H158 X W520mm 12.3Kg			D225 X H158 X W540mm 14.8Kg			D225 X H158 X W650mm 16.8Kg		

▶Applicable Equipment

Precision test equipment, precision medical equipment, precision audio and video equipment, solar lamps, mercury / Halogen / HQI lamps, non-linear load [motor / coil, etc.], other electrical or electronic equipment, and equipment which could experience malfunction due to similar step form waves

☞ The product specifications may be changed without notice for the improvement of performance.

This product, a state-of-the-art pure sine wave inverter, has the same digital electric quality as the KEPCO electric waveform. It is a patented product, developed with Korea's unique source technologies: designed to be the highly competitive in quality, technology and price.

It is imperative to read this manual fully and then install this product as specified. Failure to follow the manual may result in damage or loss of equipment. Do not fail to check the specifications for installation.

SPEACIAL Ⅰ

- By using a D.S.P (Digital Signal Process) drive, this implements a high quality/high output of a pure sine wave based on high safety standards.
- In response to changes in battery power or changes in input power, the product adapts perfectly upon Start-up ON/OFF.
- Completion of an innovative pure sine wave technology by digitalizing the complete driving of non-linear loads (motor, mercury lamp, halogen, etc.)
- A pure sine wave inverter which ensures the benefit of consumers with a two-year-extended warranty period

FC

Note : This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

SPEACIAL Ⅱ

- Thanks to an excellent driving force, the product provides more than 3㎾ power of common inverters (using similar step wave) by using 2㎾ power.
- This product has an excellent driving force as well as much higher surge output than its own output capacity. Therefore, the product can operate any tool or device by exceeding their own output capacities using startup surge during a short time
- Thanks to a built-in protection circuit of the I/O sensor, this product stops operating automatically upon low voltage or sudden changes in input/output. Also, this product has complete control against sudden environmental changes such as high heat
- This product is designed using superior high performance circuits without power consumption to dampen any noise generated from the product
- The equipment is a high quality product that acquired Safety Certification (Safety Standards KOREA KC(EMC/EMI)) suitable for broadcasting and communications equipment in accordance the Wireless Telegraphy Act and U.S. FCC(EMC/EMI). It is supplied for government offices and military units.

References

The product, DSP (Digital Signal Processing) type inverter, uses DC input power (12V, 24V, 48V) to generate AC power (200V-240V or 100V-120V) so that it can use various electrical and electronic devices within their rated capacities using pure sine waves.
These devices must be connected according to the designated sequence. Otherwise, it may cause malfunction in this equipment or other applied devices.

Ⅰ. Battery (Input Power)

- Battery Select (DC 12V): When a 100A battery is applied to the 500W output (AC 220V), it can be theoretically used for 2.4 hours (about 8.3A is required in case of 100W). But, it can be actually used for about 1.5 hours (90 minutes within 60%) without charging.
- Battery Select (DC 24V): When a 100A battery is applied to the 500W output (AC 220V), it can be theoretically used for 4.7 hours (about 4.2A is required in case of 100W). But, it can be actually used for about 2.4 hours (160 minutes within 60%) without charging.
- Battery Select (DC 48V): When a 100A battery is applied to the 500W output (AC 220V), it can be theoretically used for 8 hours (about 2.1A is required in case of 100W). But, it can be actually used for about 4.5 hours (290 minutes within 60%) without charging.

※ However, the service life of the battery may vary subject to its application. When the battery is used to more than 60% capacity, its service life may be drastically reduced.

Ⅱ. Output Power (AC)

There are AC 200V, 220V, 230V and 240V output functions.
The output AC cord may be use to the length of 40-50m with various thicknesses.

※ Caution: When using electrical and electronic devices for a long time (more than three hours), it should be selected within about 80% of output capacity.

Ⅲ. Warning Lamp (Red LED) Display

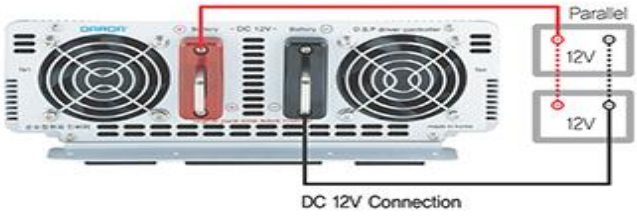
① Output Short LED
② Over load LED
③ Over temperature protection LED
④ Low battery buzzer/LED
⑤ High battery buzzer/LED

Ⅳ. Fan Operation

The fan automatically operates when this equipment is heated subject to its applied output.
Operation Startup Temperature: 43℃±5℃

V. Input/Output Connection (DC 12V)

● Input Connection



● Output Connection

Caution

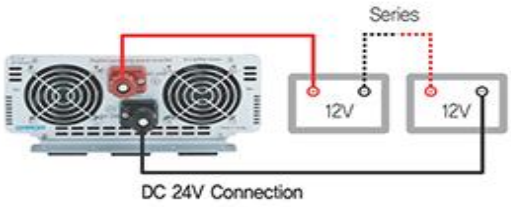
Do not wrap this product with a dual case nor install it in any non-ventilated or easily heated places

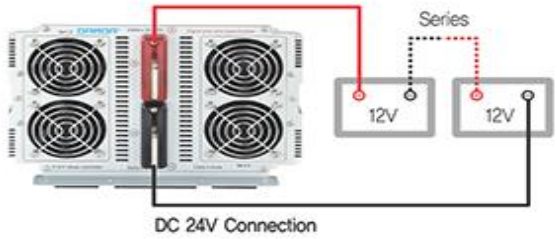
Warning

This product includes spark-prone battery connections. To prevent a fire or other hazards, do not install it in any narrow space containing flammable materials or places where various equipment is combined. Moisture or water may cause serious damage in this product. Important: keep it away from direct sunlight.

V. Input/Output Connection (DC 24V)

● Input Connection





● Output Connection

Caution

Do not wrap this product with a dual case nor install it in any non-ventilated or easily heated places.

Warning

This product includes spark-prone battery connections. To prevent a fire or other hazards, do not install it in any narrow space containing flammable materials or places where various equipment is combined. Moisture or water may cause serious damage in this product. Important: keep it away from direct sunlight.

Use the following sequence when installing this product.

A. Be sure to check the input voltage and electrode ⊕ ⊖ of the battery being used. Check that a 12V battery is used for the 10V–16V input voltage, a 24V battery for the 20V–31V input voltage and a 48V battery for the 40V–60V input voltage.

B. Connect the red cable to the ⊕ electrode of the battery and the black cable to the ⊖ electrode of the battery. (Refer to the connection diagram in Pages 7–8.) The thickness of the cables varies subject to the output of products. Less than 3m cables are used. A short and thick connection is recommended for the improvement of cable efficiency.

C. Connect the red cable to the ⊕ electrode of the battery and the black cable to the ⊖ electrode of the battery. To prevent the loosening of terminals, contact the cables to firmly the terminals and firmly tighten them.

D. Check if the cables are firmly connected to the exact electrodes (⊕ ⊖), and turn the power switch to on.

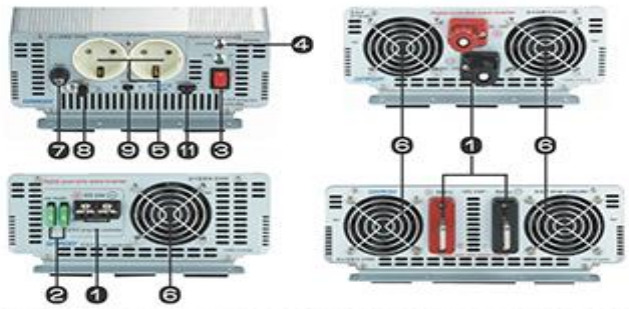
E. A buzzer sound occurs when the power is on and the LED (green lamp) turns on. When the buzzer rings continuously, turn off the switch and power off the devices connected with AC power or disconnect them from the outlet, and turn on the switch again. When the buzzer stops ringing and the LED (green) turns on, the equipment is ready for normal operation. Check the power consumption of connected devices.

F. Connect relevant devices (which have less than maximum capacity of this product) to the AC output power. Do not use faulty equipment. Otherwise, it may cause unexpected defects in this inverter. It is recommended to use this inverter within 60% of maximum capacity for a long-term use and within 70% of maximum capacity for a 1–2 hour use. In the case of overload capacity, the buzzer sounds and the inverter stops operating. The input protect (auto sensor) or output sensor stops automatically.

G. When the inverter is heated due to application of the maximum allowable capacity, the protect lamp (red LED) flashes and the buzzer sound occurs and the inverter stops operating. When the heated temperature falls below the reference value, the buzzer sound occurs again and the inverter operates again. Repeated operation of overload may cause malfunction in this inverter and the connected input battery may not be recharged. Special cautions are required.

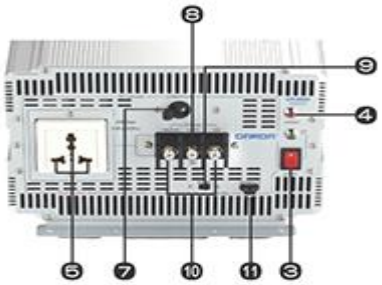
■ Each Section and Name

• DK1210 • DK2410 • DK4810



• DK1215 • DK2415 • DK4815

• DK1230 • DK243 • DK4830



• DK1250
• DK2450
• DK4850
• DK1260
• DK2460
• DK4860
• DK1280
• DK2480
• DK4880

This product, a state-of-the-art pure sine wave inverter, has the same digital electric quality as the KEPCO electric waveform. It is a patented product developed with Korea's unique source technologies designed to be highly competitive in quality, technology and price.

❶ Input 12V/24V/48V Terminals

The terminal is applied to the input voltage of 12V, 24V, and 48V. Firmly fix the cables to the terminal because much current passes through the terminal. The connection must be performed by skilled technicians only.

※Be careful not to change electrodes (⊕ ⊖).

※Fix connection terminals and wires using the attached nut. If the connection is even a little loose, it may cause heat and malfunction in terminal. In a place with much vibration, tighten the connected terminal to prevent loosening, and fix it with adhesives or adhesive tapes with high heat resistance.

❷ Input DC 12V/24V/48V Fuses

Thanks to the switch and fuse functions of the protect circuit, when cable electrodes (⊕ ⊖) are changed or there are rapid changes in input /output power or the applied capacity is exceeded, the fuse will be disconnected. When there is any external rapid change during normal operation, the circuit operates automatically to protect this equipment.

※The fuse and auto breaker sensor circuit are attached to the panel or included in the internal substrate.

❸ Power Switch

Both input power (DC) and output power (AC) can be blocked at the same time. This switch is used when normal ON/OFF.

※When using a separate switch, this switch must be off. Otherwise, the separate switch is not on/off.

❹ Warning Lamp (Over Protector LED)

When the inside of the circuit is overheated or it exceeds the maximum capacity, the equipment will stop operating automatically for safety. When the equipment capacity again becomes normal, its operation will be automatically restored. The warning buzzer sound occurs before stopping operation. At this time, take any prompt action (operation stop) for safety. Otherwise, it may cause malfunction in the equipment.

※Warning Lamp (Red LED) Display

A. Output short LED	B. Over load LED	C. Over temperature protection
D. Low battery	E. High Battery	F. Auto return

※Refer to separate cautions regarding operation stop lamps (LED) for each function.

❺ AC220V Outlet (60Hz/50Hz)

An outlet for connection of AC220V power, this is used to connect devices having less than 20V–15A~18A capacity (400W).

❻ Auto Fan

When the internal temperature of this equipment rises (40℃–55℃), the fan begins automatically. The fan operates in the same wind direction as the ventilator.

❼ Output AC220V protect switch or Fuse

Thanks to the output circuit breaker or fuse and output fuse functions, when there are rapid changes in output power or it exceeds the maximum capacity, output power is shut off automatically.

When the user turns on the switch but the switch turns off again while the input power operates normally, the applied devices may be within the over–output or defective status. The less than 2kw models has an auto breaker or fuse in the panel.

❽ Earth Terminal

The whole case of this equipment is grounded. Before use, connect the various connectors and equipment switchboards to the ground terminal of this equipment.

❾ 60Hz/50Hz Select Switch

60Hz/50Hz can be set. Set the equipment depending on the specified frequency.

※The default value is set to 60Hz at the factory.

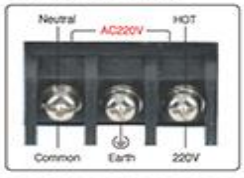
※In countries using AC220V–240V (based on 220V), it can be applied to this equipment by changing the frequency.

❿ Output AC220V Terminal (models of greater than 4kw applied equipment of more than 5000W)

Connect models of greater than 5kw to this terminal before use.

The AC output outlet in Item 5 should be used only for about 3kw AC220V output. Devices, which have greater than 3kw electric capacity, such as welders or motor compressors, must be connected to this terminal. Be sure to consult with professional engineers before the connection of wires. It is important to connect the terminal while referring to the correct diagram.

※The circuit consists of Neutral or Common terminal (one of AC terminals is a common line). Refer to it when making a connection.



⓫ Remote switch connecter

When there is a need for a power switch in the position away from this equipment, or when it is difficult to operate the power switch due to the positioning of the equipment installation, connect the sub-switch connecter to the power switch. This switch should be on/off only when the power switch of this equipment is off.

Prior to requesting after-sales services, please check the following trouble shooting items.

Symptom	Cause and Check	Troubleshooting
1. The warning lamp turns on due to low output voltage.	The capacity of the device connected to the output is in overloaded status. (Check whether it is overloaded.)	Stop the operation of the device. Check the capacity of this device and use it to less than the rated capacity. (Refer to the operation manual).
2. Even if small-capacity devices are connected, the output voltage is low or does not come out.	Check the battery charging status. Check the battery life. Check the battery connection cable.	Check the battery charging status and the thickness of the connecting cable. (The cigarette jack cannot be used for more than 150W.)
3. The warning lamp turns on and a buzzer sound occurs.	Check if there is any defect in the device connected to the output. Check that the power consumption on the connected device is same as or exceeds the output on the inverter.	Check if there is any defect in the device connected to the output. For normal operation, the motor or refrigerator must be operated within the rated capacity of this device.
4. The input fuse is disconnected.	Check the battery connection status (⊕ ⊖). Check the status of the device connected to the output.	Check if the battery cable is connected to the proper electrode (⊕ ⊖) Check the power status of the device connected to the output.
5. The output fuse or output terminal is disconnected.	Check if the output is overloaded. Check the status of the device connected to the output.	Replace the output fuse by spare fuses and check if the power consumption of the device is overloaded.
6. A high output voltage occurs and the output increases and overheats the device.	Check if the battery voltage is 12V or 24V and 48V.	Immediately power off the device connected to the output (AC). Check the battery voltage using a tester.
7. The device is in the auto-stop status.	Turn off the power switch, turn it on after about one minute, and check if the device is blocked automatically.	Check the power consumption of the devices to verify that the connected devices need the operation of more than the output of the applied models. Check that the ambient temperature increases rapidly and as a result heats the inverter.

Common Problems

Audio System Noise : The stereo system and the large portable cassette may create noise signals arising from the speaker when the inverter operates in a close place. This is a phenomenon caused when the current flowing to the equipment interferes with the current flowing to the inverter.

TV Interference : The operation of this inverter may interfere with receiving special TV channels. If this situation occurs, the following procedure can solve the problem.

- Audio, TV, and wireless devices should be installed in a place more than 1m away from this inverter if possible.

Precautions

DARDA® challenge power Technology is different. A new concept of digital (D.S.P) control program

- The devices, including refrigerators, air-conditioning equipment, electric motors, and electric drills, in which much power is instantaneously loaded, can be normally operated when using the inverter having 1.5-2 times higher output than the maximum output of this product. Before applying to this product, check the devices' capacity.
- In particular, if the motor is used under the assumption that the rated capacity is same as that of this product, the motor may not operate due to the insufficient driving force (surge) of this product.
- If any failure by unknown causes occurs often, The high-quality three-wavelength lamp should be used.
- Devices using a heater generate much heat. When they are applied to this product, special cautions for ventilation are required. Bad ventilation may cause operational stop or malfunction in this product.
- The audio and video equipment should be used within the range of the sum (watt) of the designated rated capacities. If the capacity exceeds the rated capacity of this product, the devices may be temporarily blocked. Safe use can be ensured when the devices are used within the 75%-85% range of designated capacities.

Charging System

The battery life is dependent upon the charging system performance. Improper charging methods may reduce your battery life. Please charge the battery when more than about 60% of battery .

WARRANTY

- This product is compensated according to the Compensation Criteria for Consumers' Damages.
- This product is manufactured based on a strict quality control and inspection process. Any trouble arising from the normal use be repaired free of charge during the warranty period in our A/S center, agencies and distributors, or other service centers.
- The warranty period is two (2) years from the date of delivery.
- In the following cases, even within the warranty period, the service fee may be charged:
  - any breakdown which occurs due to remodeling or mishandling failure;
  - any breakdown which occurs due to fire or flood damage;
  - when there is no warranty
- The retention period of repair parts for this product is five (5) years

Product Name		DK-series sine wave inverter	Warranty Period
Model Name			
Serial No.			2 years
Purchase Date			
Client	Address		
	Name		
	Tel		

Distributor	Trade Name
	Address
	Tel

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