

COTEK

SK Series Pure Sine Wave Inverter User's Manual

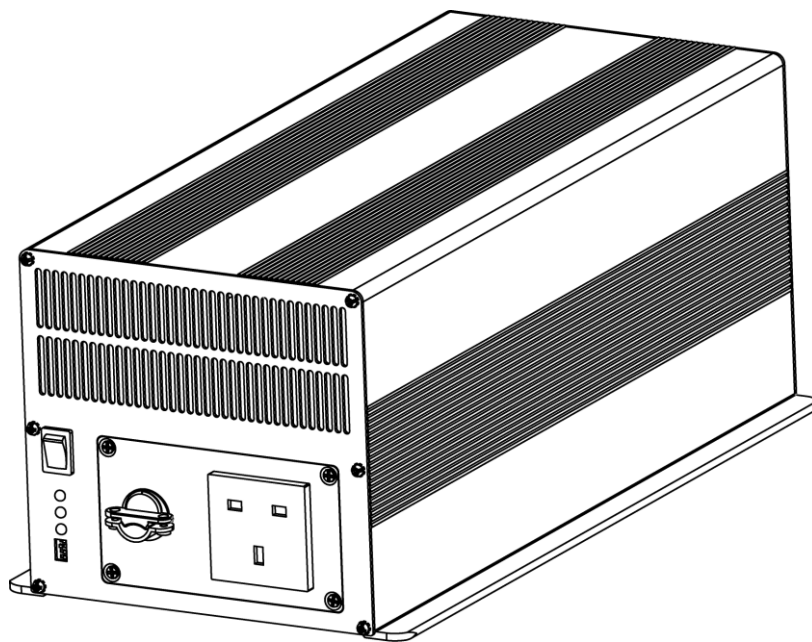




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1. Important Safety Information



WARNING!

Before using the Inverter, read and save the safety instructions.

1-1. General Safety Precautions

- 1-1-1. Do not expose the Inverter to rain, snow, spray, bilge or dust.
To reduce risk of hazard, do not cover or obstruct the ventilation openings. Do not install the Inverter in a zero-clearance compartment. Overheating may result.
- 1-1-2. To avoid a risk of fire and electronic shock, make sure that existing wiring is in good electrical condition and not undersized.
Do not operate the Inverter with damaged or substandard Wiring.
- 1-1-3. There are some components in the inverter can cause arcs and sparks.
To prevent from fire or explosion, do not put batteries, flammable materials, or anything should be ignition–protected around the inverter.

1-2. Battery Precautions

- 1-2-1. If battery acid contacts skin or clothing, you shall wash it out with soap and water immediately. If battery acid contacts your eyes, you shall wash it out with cold running water for at least 20 minutes and get medical attention immediately.
- 1-2-2. Never smoke or make a spark or flame in the vicinity of the battery or the engine.
- 1-2-3. Do not drop a metal tool on the battery. The resulting spark or short-circuit on the battery of other electrical part may cause an explosion.
- 1-2-4. Remove personal metal items such as rings, bracelets, necklaces, and watches when operating with a lead-acid batteries.
Doing so may cause short circuit and very high temperature, which can melt metal items and even burn you.

2. Features

- DC input socket availability is suitable for different user scenarios
- Power ON / OFF remote control
- E13 / CE / FCC approved
- Pure sine wave output (THD < 3%)
- Output frequency 50 / 60Hz selectable by DIP switch
- Input & output fully isolation
- Power Saving Mode to save energy (except SK200 and SK350)
- High efficiency 89~94%
- Driving highly reactive & capacitive loads at start moment
- Tri-Color indicators show input voltage & output load level
- Loading controlled cooling fan
- Advanced microprocessor
- Input Protection: Reverse Polarity (Fuse)/ Under Voltage/ Over Voltage
Output Protection: Short circuit/ Overload/ Over temperature

2-1. Application

- 2-1-1. Power tools – circular saws, drills, grinders, sanders, buffers, weed and hedge trimmers, air compressors, etc.
- 2-1-2. Office equipment – computers, printers, monitors, facsimile machines, scanner, etc.
- 2-1-3. Household appliances – vacuum cleaners, fans, fluorescent and incandescent lights, shavers, sewing machines.
- 2-1-4. Kitchen appliances – coffee makers, blenders, ice markers, toasters, etc.
- 2-1-5. Industrial equipment – metal halide lamp, high – pressure sodium lamp, etc.
- 2-1-6. Home entertainment electronics – television, VCRs, video games, stereos, musical instruments, satellite equipment, etc.

2-2. Electrical Performance

| Specification | Model No. | | | | | |
|------------------------------|---|------------------|------------------|--|------------------|------------------|
| | SK700-112 | SK700-124 | SK700-148 | SK700-212 | SK700-224 | SK700-248 |
| AC Voltage | 100 / 110 / 120VAC ± 5% | | | 220 / 230 / 240VAC ± 3% | | |
| Rated Power | 700W | | | | | |
| Surge Power | Load 101 ~ 115% (3min.) | | | | | |
| | 1400W (3 sec; resistive) | | | | | |
| Waveform | Pure Sine Wave (THD < 3%) | | | | | |
| Frequency | 50 / 60Hz ± 0.5% selectable by DIP switch | | | | | |
| Standard Receptacles | GFCI / NEMA | | | Schuko / Australia / UK / Universal / IEC | | |
| No Load Current Draw (Max.) | 1.25A | 0.64A | 0.31A | 1.20A | 0.60A | 0.28A |
| Stand-By Current Draw (Max.) | 0.25A | 0.15A | 0.08A | 0.25A | 0.15A | 0.08A |
| DC voltage | 12VDC | 24VDC | 48VDC | 12VDC | 24VDC | 48VDC |
| Input Voltage Range | 10.5-15.0 VDC | 21.0-30.0 VDC | 42.0-60.0 VDC | 10.5-15.0 VDC | 21.0-30.0 VDC | 42.0-60.0 VDC |
| Efficiency (Typ.) *1 | 89% | 91% | 92% | 91% | 93% | 94% |
| Input Level Indicator | Red / Orange / Green LED | | | | | |
| Load Level Indicator | | | | | | |
| Failure Indicator | Red LED | | | | | |
| Protection | Overload, Short Circuit, Reverse Polarity (Fuse), Over / Under Input Voltage, Over Temperature. | | | | | |
| Remote Control Unit | CR-6 / CR-8 (Optional) | | | | | |
| Safety Standards | Certified UL 458 (SK700-148 only meet UL 458) (UL only for "GFCI" receptacles) | | | Certified EN 60950-1 | | |
| Isolation Resistance | I/P – O/P: 100M Ohms / 500VDC | | | | | |
| EMI Conduction & Radiation | Certified FCC Class A | | | Certified EN 55022; EN 61204-3 EN 61000-3-2, -3-3, -6-4 | | |
| EMS Immunity | ---- | | | Certified EN55024; ENV 50204 EN 61204-3; EN 61000-6-2 IEC 61000-4-2, 3, 4, 5, 6, 8, 11 | | |
| E-Mark | ---- | | | Certified CISPR 25 ISO 11452-2; ISO 7637-2 | | |
| Working Temperature | 0 ~ +40 °C | | | | | |
| Storage Temp. & Humidity | -30°C ~ +70°C, 10~95% RH | | | | | |
| Cooling | Loading controlled cooling fan | | | | | |
| Dimension (WxHxD) | 179 x 72 x 273 mm / 7.05 x 2.83 x 10.75 inch | | | | | |
| Weight | 3.36kg | | | | | |

Note: The specifications are subject to change without notice.

| Specification | Model No. | | | | | |
|---------------------------------------|---|------------------|----------------|--|------------------|------------------|
| | SK1000-112 | SK1000-124 | SK1000-148 | SK1000-212 | SK1000-224 | SK1000-248 |
| AC Voltage | 100 / 110 / 120V ± 5% | | | 220 / 230 / 240V ± 3% | | |
| Rated Power | 1000W | | | | | |
| Surge Power | Load 101 ~ 115% (3min.) | | | | | |
| | 2000W (3 sec; resistive) | | | | | |
| Waveform | Pure Sine Wave (THD < 3%) | | | | | |
| Frequency | 50 / 60Hz ± 0.5% selectable by DIP switch | | | | | |
| Standard Receptacles | GFCI / NEMA | | | Schuko / Australia / UK / Universal | | |
| No Load Current Draw (Max.) | 1.43A | 0.75A | 0.38A | 1.20A | 0.60A | 0.28A |
| Stand-By Current Draw (Max.) | 0.25A | 0.15A | 0.09A | 0.25A | 0.15A | 0.08A |
| DC voltage | 12VDC | 24VDC | 48VDC | 12VDC | 24VDC | 48VDC |
| Input Voltage Range | 10.5-15.0 VDC | 21.0-30.0 VDC | 42-60.0 VDC | 10.5-15.0 VDC | 21.0-30.0 VDC | 42.0-60.0 VDC |
| Efficiency (Typ.) *1 | 89% | 92% | 93% | 91% | 93% | 94% |
| Input Level Indicator | Red / Orange / Green LED | | | | | |
| Load Level Indicator | | | | | | |
| Failure Indicator | Red LED | | | | | |
| Protection | Overload, Short Circuit, Reverse Polarity (Fuse), Over / Under Input Voltage, Over Temperature. | | | | | |
| Remote Control Unit | CR-6 / CR-8 (Optional) | | | | | |
| Safety Standards | Certified UL 458 (SK1000-148 only meet UL 458) (UL only for "GFCI" receptacles) | | | Certified EN 60950-1 | | |
| Isolation Resistance | I/P – O/P: 100M Ohms / 500VDC | | | | | |
| EMI Conduction & Radiation | Certified FCC Class A | | | Certified EN 55022; EN 61204-3 EN 61000-3-2, -3-3, -6-4 | | |
| EMS Immunity | ---- | | | Certified EN55024; ENV 50204 EN 61204-3; EN 61000-6-2 IEC 61000-4-2, 3, 4, 5, 6, 8, 11 | | |
| E-Mark | ---- | | | Certified CISPR 25 ISO 11452-2; ISO 7637-2 | | |
| Working Temperature | 0 ~ +40 °C | | | | | |
| Storage Temp. & Humidity | -30°C ~ +70°C, 10~95% RH | | | | | |
| Cooling | Loading controlled cooling fan | | | | | |
| Dimension (WxHxD) | 182 x 89 x 340 mm / 7.17 x 3.50 x 13.39 inch | | | | | |
| Weight | 4.76kg | | | | | |

Note: The specifications are subject to change without notice.

| Specification | Model No. | | | | | |
|---------------------------------------|---|------------------|------------------|--|------------------|------------------|
| Item | SK1500-112 | SK1500-124 | SK1500-148 | SK1500-212 | SK1500-224 | SK1500-248 |
| AC Voltage | 100 / 110 / 120V ± 5% | | | 220 / 230 / 240V ± 3% | | |
| Rated Power | 1500W | | | | | |
| Surge Power | Load 101 ~ 115% (3min.) | | | | | |
| | 3000W (3 sec; resistive) | | | | | |
| Waveform | Pure Sine Wave (THD < 3%) | | | | | |
| Frequency | 50 / 60Hz ± 0.5% selectable by DIP switch | | | | | |
| Standard Receptacles | GFCI / NEMA | | | Schuko / Australia / UK / Universal | | |
| No Load Current Draw (Max.) | 1.45A | 0.75A | 0.40A | 1.40A | 0.70A | 0.40A |
| Stand-By Current Draw (Max.) | 0.28A | 0.15A | 0.09A | 0.28A | 0.15A | 0.09A |
| DC voltage | 12VDC | 24VDC | 48VDC | 12VDC | 24VDC | 48VDC |
| Input Voltage Range | 10.5-15.0 VDC | 21.0-30.0 VDC | 42.0-60.0 VDC | 10.5-15.0 VDC | 21.0-30.0 VDC | 42.0-60.0 VDC |
| Efficiency (Typ.) *1 | 88% | 91% | 92% | 90% | 93% | 94% |
| Input Level Indicator | Red / Orange / Green LED | | | | | |
| Load Level Indicator | | | | | | |
| Failure Indicator | Red LED | | | | | |
| Protection | Overload, Short Circuit, Reverse Polarity (Fuse), Over / Under Input Voltage, Over Temperature. | | | | | |
| Remote Control Unit | CR-6 / CR-8 (Optional) | | | | | |
| Safety Standards | Certified UL 458 (SK1500-148 only meet UL 458) (UL only for "GFCI" receptacles) | | | Certified EN 60950-1 | | |
| Isolation Resistance | I/P – O/P: 100M Ohms / 500VDC | | | | | |
| EMI Conduction & Radiation | Certified FCC Class A | | | Certified EN 55022; EN 61204-3 EN 61000-3-2, -3-3, -6-4 | | |
| EMS Immunity | ---- | | | Certified EN55024; ENV 50204 EN 61204-3; EN 61000-6-2 IEC 61000-4-2, 3, 4, 5, 6, 8, 11 | | |
| E-Mark | ---- | | | Certified CISPR 25 ISO 11452-2; ISO 7637-2 | | |
| Working Temperature | 0 ~ +40 °C | | | | | |
| Storage Temp. & Humidity | -30°C ~ +70°C, 10~95% RH | | | | | |
| Cooling | Loading controlled cooling fan | | | | | |
| Dimension (WxHxD) | 191 x 89 x 370 mm / 7.52 x 3.50 x 14.57 inch | | | | | |
| Weight | 5.3 kg | | | | | |

Note: The specifications are subject to change without notice.

| Specification | Model No. | | | | | |
|------------------------------|---|------------------|------------------|--|------------------|------------------|
| | SK2000-112 | SK2000-124 | SK2000-148 | SK2000-212 | SK2000-224 | SK2000-248 |
| AC Voltage | 100 / 110 / 120V ± 5% | | | 220 / 230 / 240V ± 3% | | |
| Rated Power | 2000W | | | | | |
| Surge Power | Load 101 ~ 115% (3min.) | | | | | |
| | 4000W (3 sec; resistive) | | | | | |
| Waveform | Pure Sine Wave (THD < 3%) | | | | | |
| Frequency | 50 / 60Hz ± 0.5% selectable by DIP switch | | | | | |
| Standard Receptacles | GFCI / NEMA / Hard wire | | | Schuko / Australia / UK / Universal / Hard wire | | |
| No Load Current Draw (Max.) | 2.80A | 1.50A | 0.70A | 2.64A | 1.32A | 0.65A |
| Stand-By Current Draw (Max.) | 0.60A | 0.30A | 0.15A | 0.60A | 0.25A | 0.15A |
| DC voltage | 12VDC | 24VDC | 48VDC | 12VDC | 24VDC | 48VDC |
| Input Voltage Range | 10.5-15.0 VDC | 21.0-30.0 VDC | 42.0-60.0 VDC | 10.5-15.0 VDC | 21.0-30.0 VDC | 42.0-60.0 VDC |
| Efficiency (Typ.) *1 | 89% | 92% | 93% | 91% | 94% | 95% |
| Input Level Indicator | Red / Orange / Green LED | | | | | |
| Load Level Indicator | | | | | | |
| Failure Indicator | Red LED | | | | | |
| Protection | Overload, Short Circuit, Reverse Polarity (Fuse), Over / Under Input Voltage, Over Temperature. | | | | | |
| Remote Control Unit | CR-6 / CR-8 (Optional) | | | | | |
| Safety Standards | ---- | | | Certified EN 60950-1 | | |
| Isolation Resistance | I/P – O/P: 100M Ohms / 500VDC | | | | | |
| EMI Conduction & Radiation | Certified FCC Class A | | | Certified EN 55022; EN 61204-3 EN 61000-3-2, -3-3, -6-4 | | |
| EMS Immunity | ---- | | | Certified EN55024; ENV 50204 EN 61204-3; EN 61000-6-2 IEC 61000-4-2, 3, 4, 5, 6, 8, 11 | | |
| E-Mark | ---- | | | Certified CISPR 25 ISO 11452-2; ISO 7637-2 | | |
| Working Temperature | 0 ~ +40 °C | | | | | |
| Storage Temp. & Humidity | -30°C ~ +70°C, 10~95% RH | | | | | |
| Cooling | Loading controlled cooling fan | | | | | |
| Dimension (WxHxD) | 209 x 166 x 368 mm / 8.23 x 6.54 x 14.49 inch | | | | | |
| Weight | 9.7 kg | | | | | |

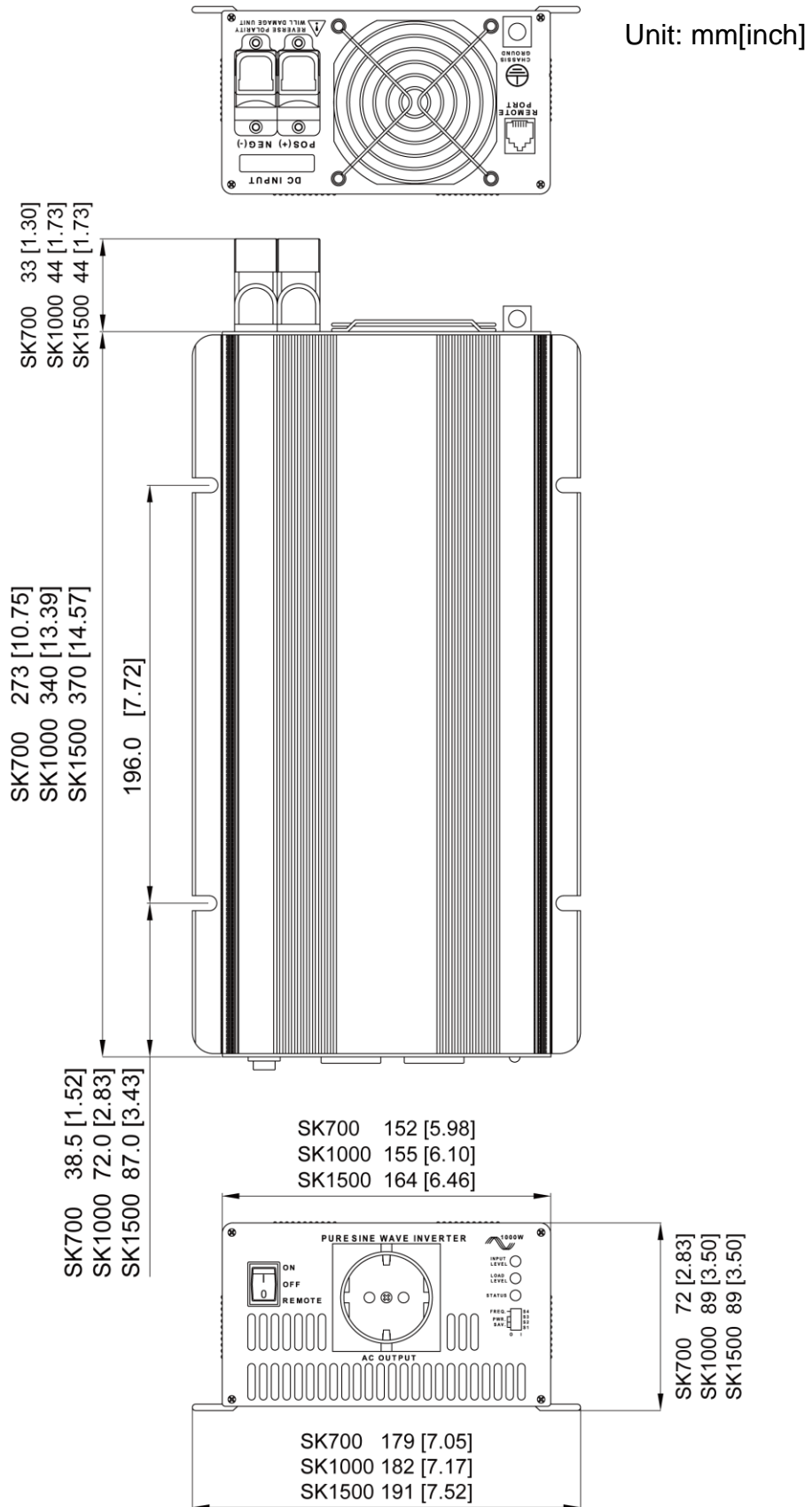
Note: The specifications are subject to change without notice.

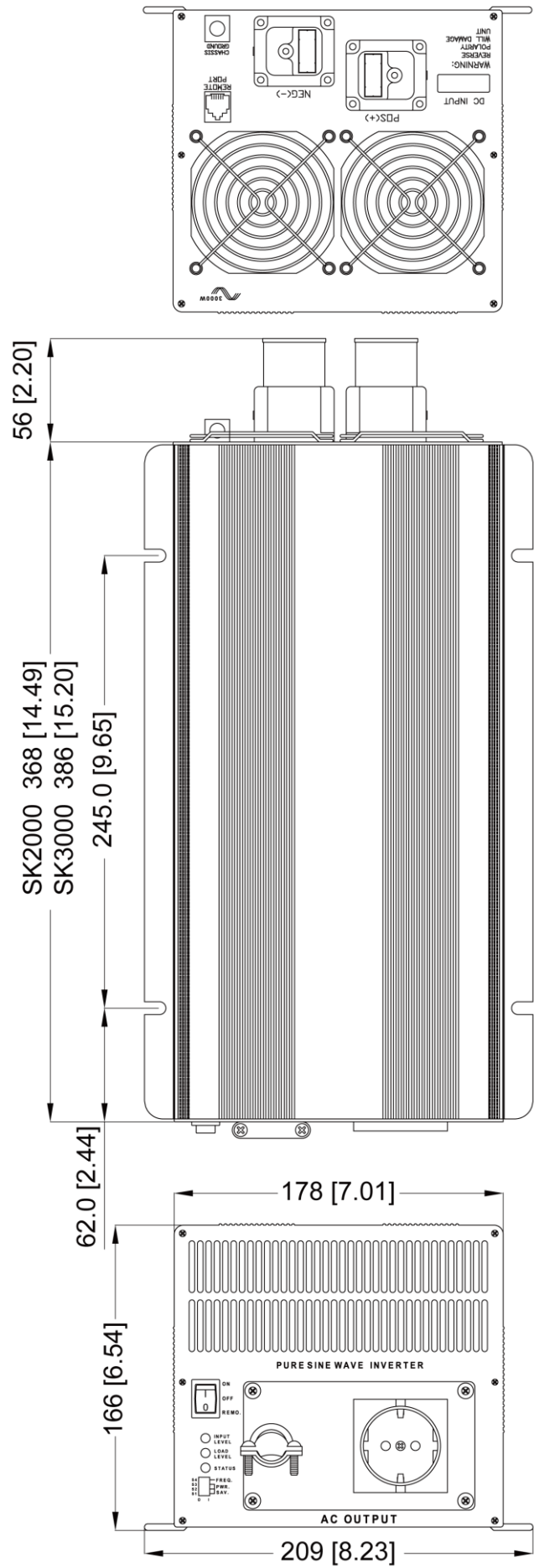
| Specification | Model No. | | | | | |
|---------------------------------------|---|------------------|------------------|--|------------------|------------------|
| Item | SK3000-112 | SK3000-124 | SK3000-148 | SK3000-212 | SK3000-224 | SK3000-248 |
| AC Voltage | 100 / 110 / 120V ± 5% | | | 220 / 230 / 240V ± 3% | | |
| Rated Power | 3000W | | | | | |
| Surge Power | Load 101 ~ 115% (3min.) | | | | | |
| | 6000W (3 sec; resistive) | | | | | |
| Waveform | Pure Sine Wave (THD < 3%) | | | | | |
| Frequency | 50 / 60Hz ± 0.5% selectable by DIP switch | | | | | |
| Standard Receptacles | GFCI / NEMA / Hard wire | | | Schuko / Australia / UK / Universal / Hard wire | | |
| No Load Current Draw (Max.) | 2.00A | 1.60A | 0.80A | 2.80A | 1.50A | 0.70A |
| Stand-By Current Draw (Max.) | 0.55A | 0.35A | 0.19A | 0.55A | 0.35A | 0.19A |
| DC voltage | 12VDC | 24VDC | 48VDC | 12VDC | 24VDC | 48VDC |
| Input Voltage Range | 10.5-15.0 VDC | 21.0-30.0 VDC | 42.0-60.0 VDC | 10.5-15.0 VDC | 21.0-30.0 VDC | 42.0-60.0 VDC |
| Efficiency (Typ.) *1 | 88% | 91% | 92% | 90% | 93% | 94% |
| Input Level Indicator | Red / Orange / Green LED | | | | | |
| Load Level Indicator | | | | | | |
| Failure Indicator | Red LED | | | | | |
| Protection | Overload, Short Circuit, Reverse Polarity (Fuse), Over / Under Input Voltage, Over Temperature. | | | | | |
| Remote Control Unit | CR-6 / CR-8 (Optional) | | | | | |
| Safety Standards | ---- | | | Certified EN 60950-1 | | |
| Isolation Resistance | I/P – O/P: 100M Ohms / 500VDC | | | | | |
| EMI Conduction & Radiation | Certified FCC Class A | | | Certified EN 55022; EN 61204-3 EN 61000-3-2, -3-3, -6-4 | | |
| EMS Immunity | ---- | | | Certified EN55024; ENV 50204 EN 61204-3; EN 61000-6-2 IEC 61000-4-2, 3, 4, 5, 6, 8, 11 | | |
| E-Mark | ---- | | | Certified CISPR 25 ISO 11452-2; ISO 7637-2 | | |
| Working Temperature | 0 ~ +40 °C | | | | | |
| Storage Temp. & Humidity | -30°C ~ +70°C, 10~95% RH | | | | | |
| Cooling | Loading controlled cooling fan | | | | | |
| Dimension (WxHxD) | 209 x 166 x 386 mm / 8.23 x 6.54 x 15.20 inch | | | | | |
| Weight | 11 kg | | | | | |

Note: The specifications are subject to change without notice.

*1 : This test condition is normal DC input (13.5V) and Temperature 25°C.

2-3. Mechanical Drawings





Unit: mm[inch]

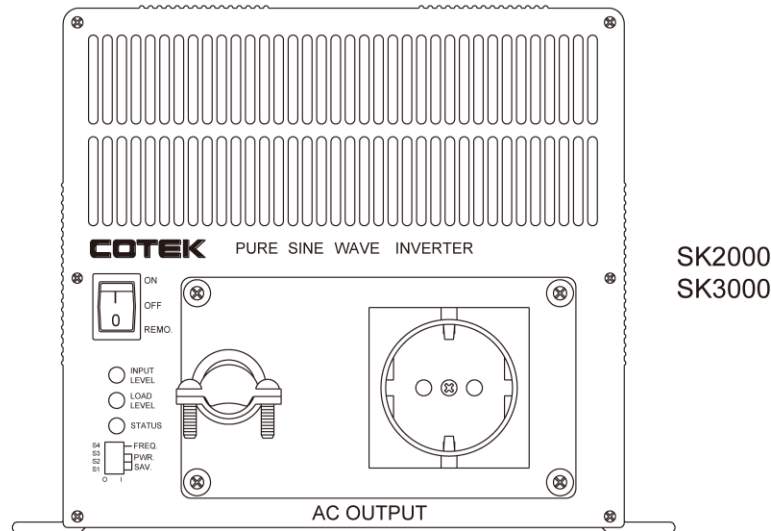
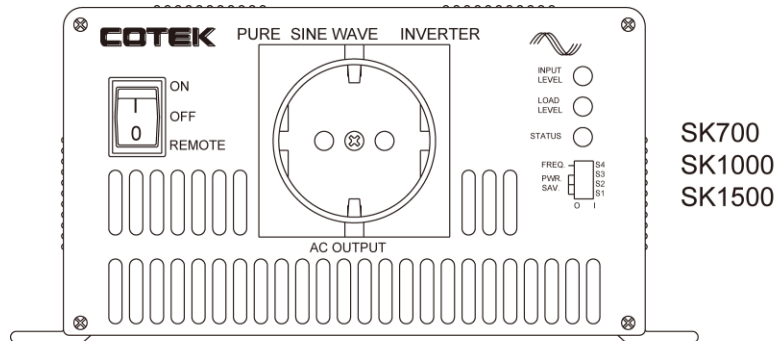
3. Introduction

This power inverter series is one of the most advanced line of mobile AC power systems.

To get the most effective power inverter, it must be installed and used properly. Please read the instructions of this manual before you install and operate this model.

3-1. Front Panel :

3-1-1. Front view :



3-1-2. ON / OFF/ REMOTE (Main) switch :

- a. Before installing the inverter, you need to ensure the main switch must be "OFF".
- b. Before using the remote unit, you need to ensure the main switch must be "REMOTE".

3-1-3. Input Level : Display Input Voltages

| LED Status | DC 12V | DC 24V | DC 48V |
|----------------|-----------|-----------|-----------|
| RED Slow Blink | 10.3~10.6 | 20.5~21.2 | 40.8~42.4 |
| RED | 10.6~11.0 | 21.2~21.8 | 42.4~43.5 |
| ORANGE | 11.0~12.1 | 21.8~24.1 | 43.5~48.1 |
| GREEN | 12.1~14.2 | 24.1~28.6 | 48.1~56.3 |
| ORANGE Blink | 14.2~15.0 | 28.6~30.0 | 56.3~59.6 |
| OVER RED Blink | 15.0↑ | 30.0↑ | 59.6↑ |

3-1-4. Load Level : Display AC Loads (Watts)

| LED status | DARK | GREEN | ORANGE | RED | RED BLINK |
|------------|----------|-------------|--------------|--------------|------------|
| SK700 | 0 ~ 150W | 151 ~ 362W | 363 ~ 622W | 623 ~ 754W | Over 754W |
| SK1000 | 0 ~ 216W | 217 ~ 520W | 521 ~ 885W | 886 ~ 1075W | Over 1075W |
| SK1500 | 0 ~ 285W | 286 ~ 730W | 731 ~ 1290W | 1291 ~ 1563W | Over 1563W |
| SK2000 | 0 ~ 460W | 461 ~ 1013W | 1014 ~ 1765W | 1766 ~ 2129W | Over 2129W |
| SK3000 | 0 ~ 581W | 582 ~ 1510W | 1511 ~ 2572W | 2573 ~ 3112W | Over 3112W |

3-1-5. AC Frequency : Selected by "S4" Dip Switch

| Frequency | S4 |
|-----------|-----|
| 50 HZ | OFF |
| 60 HZ | ON |

3-1-6. Status : Display Power & Fault Status

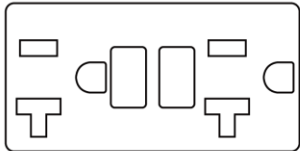
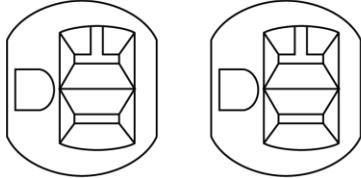
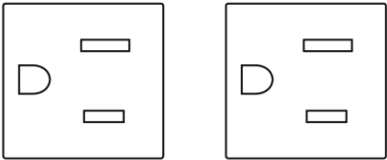
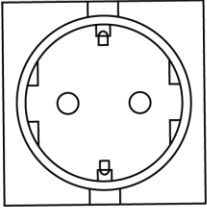
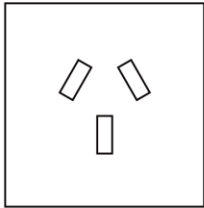
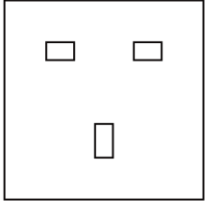
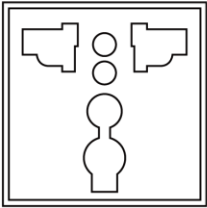
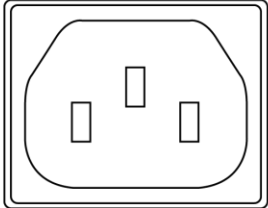
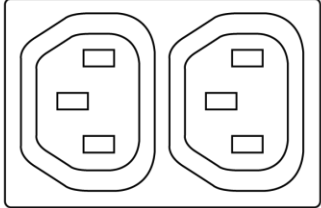
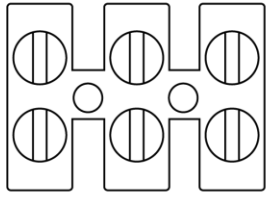
| Green LED | LED Signal | Status |
|--------------------|-----------------|--------------|
| Solid | ————— | Power OK |
| Slow Blink | - - - - | Power Saving |
| Red LED | LED Signal | Status |
| Fast Blink | - - - - - - - - | OVP |
| Slow Blink | - - - - | UVP |
| Intermittent Blink | - - - - - | OTP |
| Solid | ————— | OLP |

3-1-7. Power Saving Mode: Power Saving Mode is adjustable and set by the Dip Switches, S1, S2 and S3 on the front panel.

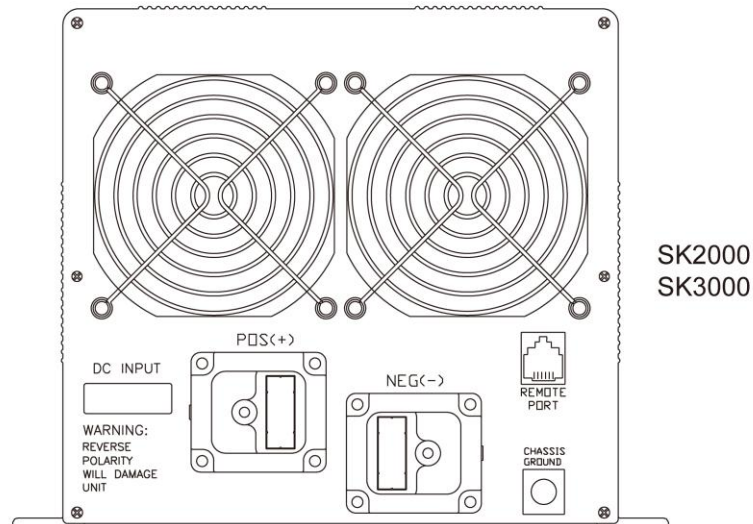
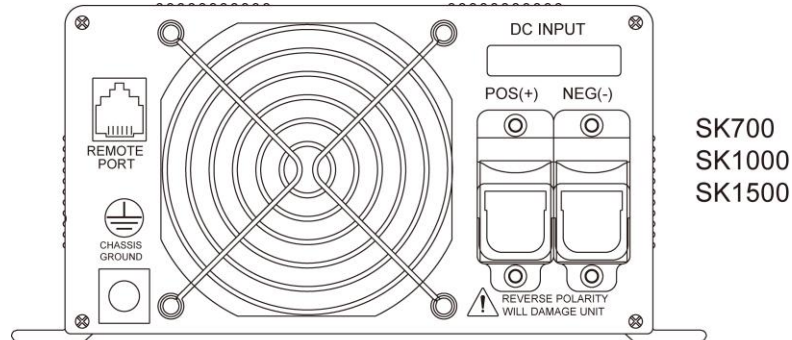
Example: With the watt setting at 15W, a 15W ↑ load will make the inverter operate normally, a 15W ↓ load will enter into the Power saving mode.

| SK700 | SK1000 SK1500 | SK2000 SK3000 | S1 | S2 | S3 |
|---------|------------------|------------------|-----|-----|-----|
| DISABLE | DISABLE | DISABLE | OFF | OFF | OFF |
| 15W | 20W | 40W | ON | OFF | OFF |
| 25W | 40W | 80W | OFF | ON | OFF |
| 40W | 55W | 125W | ON | ON | OFF |
| 50W | 75W | 170W | OFF | OFF | ON |
| 65W | 95W | 210W | ON | OFF | ON |
| 75W | 115W | 245W | OFF | ON | ON |
| 85W | 135W | 280W | ON | ON | ON |

3-1-8. AC outlets (available):

| | |
|---|---|
| <p>North America (GFCI)</p>  | <p>NEMA 5-20R</p>  |
| <p>NEMA 5-15R</p>  | <p>Continental European</p>  |
| <p>Australia / New Zealand</p>  | <p>United Kingdom</p>  |
| <p>Universal</p>  | <p>IEC-1 (Only SK700)</p>  |
| <p>IEC-2 (Only SK700)</p>  | <p>Hard Wire (Only SK2000/3000)</p>  |

3-2. Rear Panel :



3-2-1. Remote Port:

The SK Series Inverter is compatible with any of the remote controllers, CR-6, CR-8.

Before using the remote unit, you need to ensure the main switch is in the “ REMOTE ” position and the input voltage of the power inverter is the same as it of the remote unit.

3-2-2. Fan Ventilation:

Be sure to keep it a distance (at least 1 inch) form surrounding things.

3-2-3. DC Input Terminal :

Connect DC input terminal to 12V / 24V / 48V battery or the other power sources.

【 + 】 represents positive, and 【 - 】 represents negative. Reverse polarity connection will blow the internal fuse and may damage the inverter permanently.

| Model | DC Input Voltage | |
|-------|------------------|---------|
| | Minimum | Maximum |
| 12 V | 10.5 | 15.0 |
| 24 V | 21.0 | 30.0 |
| 48 V | 42.0 | 60.0 |

3-2-4. Use wire # 8 AWG to connect Chassis ground with vehicle chassis.



WARNING!

Operating the inverter without a proper ground Connection may cause an electrical hazard.

3-3. Protection Features:

| Model | DC Input (VDC) | | | | | Over Temperature Protection | | | |
|-------|----------------|---------|---------------------|---------------|---------|-----------------------------|---------|-----------|---------|
| | Over Voltage | | Under Voltage Alarm | Under Voltage | | INTERIOR | | HEAT SINK | |
| | Shut-down | Restart | | Shut-down | Restart | Shut-down | Restart | Shut-down | Restart |
| 12 V | 15.3V | 14.3V | 11.0V | 10.2V | 12.7V | 70°C | 45°C | 90°C | 60°C |
| 24 V | 30.6V | 28.8V | 22.0V | 20.3V | 25.2V | | | | |
| 48V | 61.0V | 58.1V | 44.0V | 40.8V | 49.7V | | | | |

3-4. Installation :

The power inverter should be installed in an environment that meets the following requirements :

- 3-4-1. Dry – Do not allow water to drip on or enter into the inverter.
- 3-4-2. Cool – Ambient air temperature should be between 0°C and 40°C, the cooler the better.
- 3-4-3. Safe – Do not install the inverter in a battery compartment or other areas where flammable fumes may exist, such as fuel storage areas or engine compartments.
- 3-4-4. Ventilated –Keep the inverter a distance (as least 1 inch) away from surrounding things. Ensure the ventilation shafts on the rear and the bottom of the unit are not obstructed.
- 3-4-5. Dust – Do not install the Inverter in a dusty environments
The dust can be inhaled into the unit when the cooling fan is working.
- 3-4-6. Close to batteries – Avoid excessive cable lengths. Do not install the Inverter in the same compartment as batteries.
Use the recommended wire lengths and sizes (see section 3-5).
Do not mount the Inverter where it will be exposed to the gases produced by the battery. These gases are very corrosive, and prolonged exposure will damage the Inverter.



WARNING!

Shock Hazard. Before proceeding further, carefully check that the Inverter is NOT connected to any batteries, and that all wiring is disconnected from any electrical sources. Do not connect the output terminals of the Inverter to an incoming AC source.

3-5. DC Wiring Connections :

Follow this procedure to connect the battery cables to the DC input terminals of the Inverter. The cables should be as short as possible (less than 10 feet / 3 meters ideally) and large enough to handle the required current in accordance with the electrical codes or regulations applicable to the installation.

Cables that are not an adequate gauge (too narrow) or too long will deteriorate inverter performance such as poor surge capability and frequent low-input voltage warnings and shutdowns.

These low input voltage warnings are due to DC voltage drop across the cables from the inverter to the batteries.

The longer and narrower the cables, the greater the voltage drop.

Increasing DC cable size helps improve the situation.

We recommend the following cables for optimum inverter performance.

(Apply both 120V and 230V versions)

| Model No | Wire AWG | Inline Fuse |
|------------------|----------|-------------|
| SK700-112 / 212 | # 6 | 100 A |
| SK700-124 / 224 | # 6 | 50 A |
| SK700-148 / 248 | # 8 | 30 A |
| SK1000-112 / 212 | # 2 | 150 A |
| SK1000-124 / 224 | # 4 | 80 A |
| SK1000-148 / 248 | # 6 | 40 A |
| SK1500-112 / 212 | # 2 | 200 A |
| SK1500-124 / 224 | # 4 | 100 A |
| SK1500-148 / 248 | # 6 | 50 A |
| SK2000-112 / 212 | # 2/0 | 250 A |
| SK2000-124 / 224 | # 1/0 | 125 A |
| SK2000-148 / 248 | # 4 | 70 A |
| SK3000-112 / 212 | # 4/0 | 400 A |
| SK3000-124 / 224 | # 2/0 | 200 A |
| SK3000-148 / 248 | # 4 | 100 A |

3-5-1. Connect the cables to the power input terminals on the rear panel of the inverter. The red terminal is represents positive (+) and black terminal represents negative (-). Insert the cables into the terminals and tighten the screw to clamp the wires securely.



WARNING!

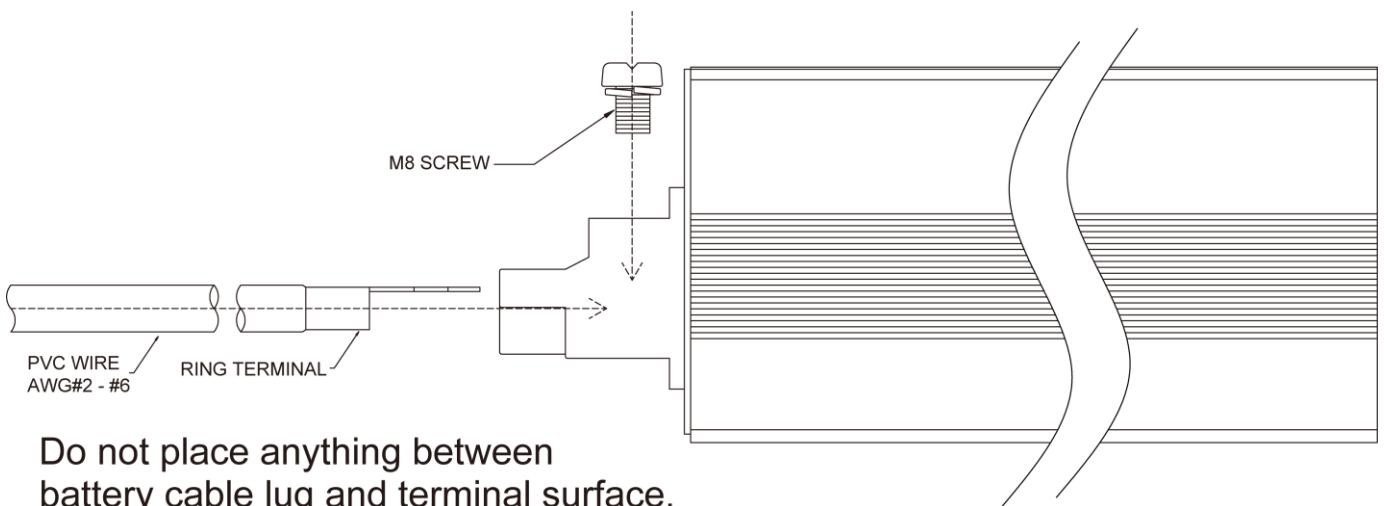
Ensure all the DC connections are tight (torque to 9 – 10 ft-lbs, 11.7 – 13 Nm). Loose connections may cause overheat and fire.



WARNING!

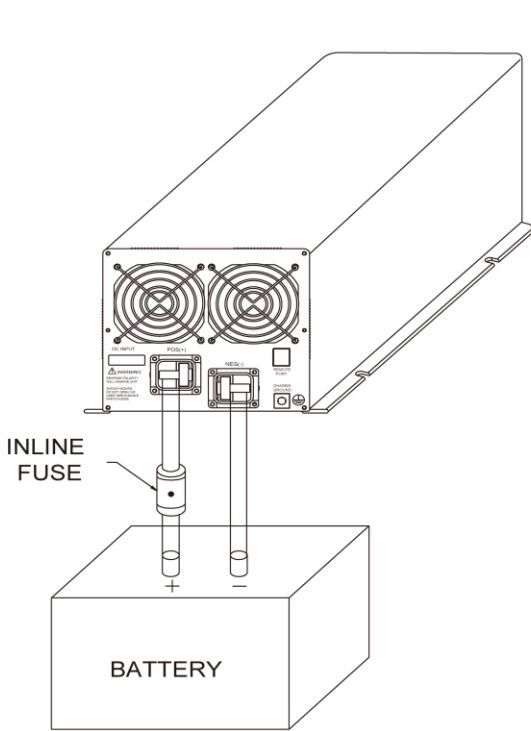
The installation of a fuse must be on a positive cable. Failure to place a fuse on “+” cables running between the inverter and battery may cause damage to the inverter and will void warranty.

Also, use only high quality copper wire and keep cable length short, a maximum of 3 - 6 feet.

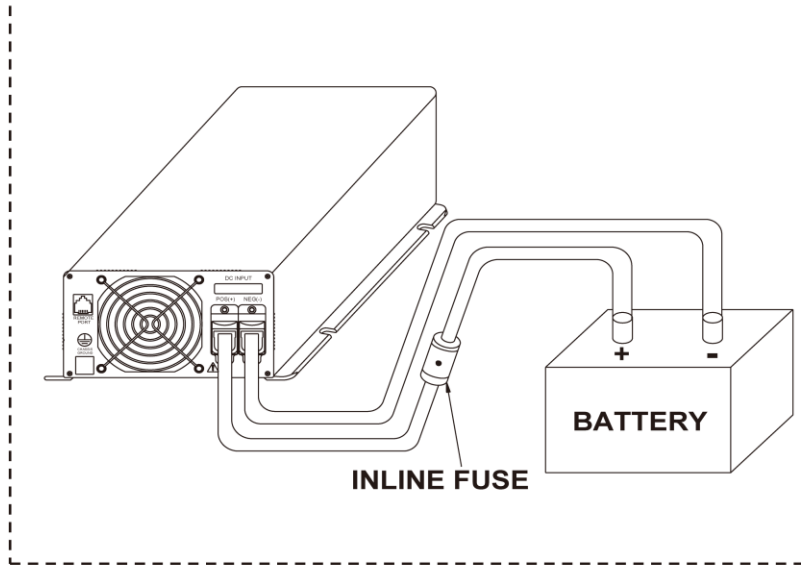


Do not place anything between battery cable lug and terminal surface. Assemble exactly as shown.

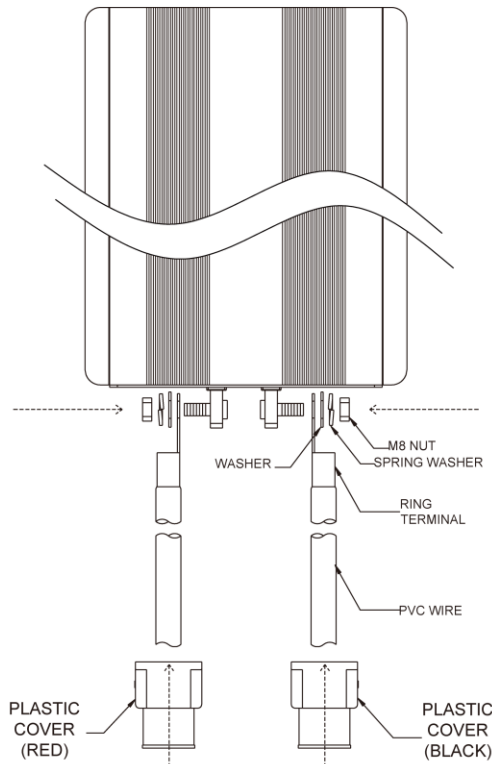
SK2000 / SK3000



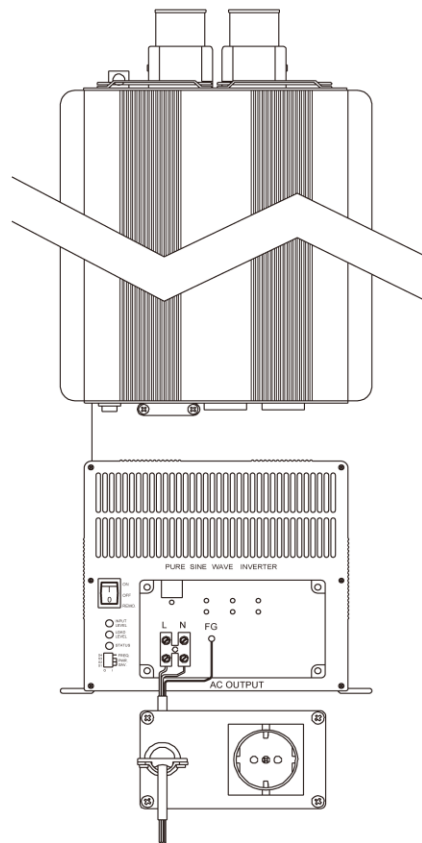
SK700 / SK1000 / SK1500



Battery to inverter cable connection



Do not place anything between battery cable lug and terminal surface. Assemble exactly as shown.



The above illustrate the output cable connection for your reference

3-6. AC Safety Grounding :

The AC output ground wire should go to the grounding point for your loads (for example, a distribution panel ground bus).

3-6-1. Neutral Grounding (GFCI'S) :

3-6-1-1. **120V models** : The neutral conductor of the AC output circuit of the Inverter is automatically connected to the safety ground during inverter operation. This conforms to National Electrical Code requirements that separately derived from AC sources (such as inverters and generators) which have their neutral conductors tied to ground in the same way as the neutral conductors from the utility tied to ground at the AC breaker panel. For models configured with a transfer relay, while AC utility power is present and the Inverter is in bypass mode, this connection (the neutral of the Inverter's AC output to input safety ground) is not present so that the utility neutral is only connected to ground at your breaker panel, as required.

Ground Fault Circuit Interrupters (GFCI) :

Installations in Recreational Vehicles (for North American approvals) will require GFCI protection of all branch circuit connected to the AC output of the hardwire terminal equipped with Inverter. In addition, electrical codes require GFCI protection of certain receptacles in residential installations. While the pure sine wave output of the Inverter is equivalent to the waveform provided by utilities, compliance with UL standards requires us to test and recommend specific GFCI. Cotek has tested the following GFCI – protected 20A receptacles and found that they functioned properly when connected to the output of the Inverter.

3-7. Inverter Operation :

To operate the power inverter, use the ON / OFF switch on the Front panel to turn the power on. Then the power inverter is ready to deliver AC power to your loads. If there is several loads use, turn them on separately after the inverter is "ON" in order to prevent OVP resulted from the surge power.

- 3-7-1. Set the power switch to "ON" position and the buzzer will send out "Beep" sounds at the moment. Then the inverter will make self-diagnosis, and the LED's indicators will also appear various colors. Finally the buzzer will "Beep" again and the Input Level and Status LED indicators will turn to "Green" color, then the inverter starts to work successfully.
- 3-7-2. Set the power switch to the OFF position, then the inverter stops and all the lights go Off.
- 3-7-3. Set the power inverter switch to ON position and turn the test load On. The inverter should supply power to the load. If you plan to accurately measure the true output r.m.s. voltage of the inverter, a meter such as FLUKE 45 BECKMAN 4410 or TRIPLETT 4200 must be used.

4. Troubleshooting :



WARNING!

Do not open or disassemble the Inverter.
Attempting to service the unit yourself may cause the risk of electrical shock or fire.

| Problems and Symptoms | Possible Cause | Solutions |
|---------------------------------------|---|---|
| "No AC Power Output" | | |
| STATUS illuminates the red LED | | |
| a. Blinking fast | Over input voltage. (OVP) | Check input voltage. Reduce input voltage. |
| b. Blinking slowly. | Low input voltage. (UVP) | Recharge battery. Check connections and the cable. |
| c. Blinking Intermittently. | Thermal shutdown. (OTP) | Improve ventilation. Make sure ventilation shafts in the inverter are not obstructed. Lower ambient temperature. |
| d. Solid ON. | Short circuit or Wiring error. Overload.(OLP) | Check AC wiring for short circuit. Reduce the load. |

5. Maintenance :

To keep your inverter operating properly, there is very little maintenance required. You should clean the exterior periodically with a damp cloth to prevent accumulation of dust and dirt. At the same time, tighten the screws on the DC input terminals.

6. Warranty :

We guarantee this product against defects in materials and workmanship for a period of 24 months from the date of purchase and will repair or replace any defective power inverters if you directly returned them to us with postage paid.

This warranty will be considered void if the unit has been misused, altered, or accidentally damaged. COTEK is not liable for anything that occurs as a result of the user's fault.

COTEK

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