

INVERTER POWER BACKUP SOLUTION – THE ULTIMATE COST EFFICIENT, HIGHLY DEPENDABLE APPROACH TO YOUR POWER BACKUP NEED



Various Sukam Inverter Designs



That there is an acute power supply shortage in Nigeria won't catch any news headline anymore. The world already knows. For a world that is largely driven by machines and technology, the impact is also obvious: your life or business will virtually grind to a halt unless you find a backup power system.

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Power generators have, till lately, been the best known solution Nigerians could find. It is still the dominant solution. Yet, its challenges are enormous, because it's not just extremely expensive to generate one's own power, it also has extensive nuisance dimensions. Unfortunately too, it doesn't store. Once your generator is off, the power is gone.

Generators – Hard Road to Travel

Any user will be quite familiar with the cost profile and attendant difficulties of using generators. Here are a few:

- **Perpetual Fuel/diesel Consumption:** Even for the smallest, least-consuming power generating units, this comes to a substantial monthly budget and for the big guzzlers, it's a huge bill.
- **Massive Maintenance Costs:** Even the newest generator will need regular servicing. Still, breakdowns will result from prolonged usage. Repairs and servicing will be a regular experience, whether you like it or not. This also grosses to a huge outlay, over the life of a generating set. If you include the cost of engine oil, you have a major expenditure head, even for a few hours of use per day.
- **Noise Pollution:** The noise factor should bother you, if you have a heart for your neighbours. Even you won't be spared of this nuisance effect.

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- **The Mess:** oil leaks, fuel drops and the messy environment are other headaches to contend with.
- **Air Pollution:** Sooner than later, even a new generating set begins to emit fumes and even thick smoke. That's a health hazard for the environment.
- **Storage of Gen:** Some build a 'house', but any size will still require some space for proper placement. Generators indoors are pure suicide.
- **Operation Headaches:** Starting, stopping, change-over, top oil, pour diesel, clean oil, etc. These are part of the endless troubles from using a generator.
- **Storage of Fuel:** Having highly inflammable fuel in your premises is almost unavoidable. You can be careful, but the risk is present. Families have been wiped by fire hazards originating from generators.
- **Replacement:** Soon the generator is gone. Reason: overwork. They were meant to be stop-gap systems but end up as generating plants. So, they expire too soon. Replacing is still a huge capital expenditure.

The list could go on, but this is already enough trouble! Generators have been helpful, no doubt, but they have also constituted a big hole in the pocket and a tonne of troubles.

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A NEW, DECISIVELY COST-SAVING APPROACH

Power inverters are providing an escape route to that power supply web. Power inverters began a quiet entry into the local power solution equation just a few years ago. Having gradually overcome initial skepticism, it is finally powering on. The reason is that user experience with any good inverter system leaves a huge positive value. Successful users tell others and the spread is gaining momentum. Another big leap came in the use of inverters to power ATMs. With many ATMs being planted here and there by banks, inverters have had a major role to play in keeping them running when the public system and banks' generators have powered down.

What is an Inverter

It is an electrical device for converting direct current (DC) to alternating current (AC). Simply put, it converts battery current to electric current, which electronics and other equipment that require power can use. Put in another way, it turns 12-volt power into 220-volt power, in our case. An inverter consequently runs off a battery bank, drawing the stored DC power to provide electric current needed to light up the environment and power appliances.

Enter Sukam High-tech Inverters

SuKam is an Indian technology company manufacturing inverters and power systems. SuKam has developed an advanced technology for its power products, priding itself as producing the world's best inverters. The experience in Nigeria has supported this. While a number of inverter brands have come into the market, SuKam has towered over

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them, simply on the strength of its quality and performance. They have proved dependable in use, providing durable service.

SuKam inverters require no external charging system. They have inbuilt charging system. Once installed, the inverter draws from the public supply (or briefly from a generating set when there is no public supply at all), to charge the batteries. Batteries can be fully charged in a couple of hours. Once the power supply is off, the inverter automatically supplies electric power to connected systems and appliances, drawing from the stored DC power.

The unit is connected to the power source to draw the current to charge the battery bank. It's also connected to the battery terminals for that purpose and then looped back to supply connected appliances when the mains cuts off.

Sukam Operation is on Full Automation

Sukam inverters run in fully automated mode, driven by high-level technology. Charging proceeds automatically, once supply is available to the inverter. Manual intervention is not required. Charging process stops automatically once batteries are fully charged. The inverter also automatically goes into supply mode, immediately public supply (or generator) is off. No intervention is required, unless inverter has been deliberately switched off. Its digital system ensures the user is constantly provided information on the working status of the equipment. This is by digital information displayed on the LCD panel. For instance, you will see alternating messages like: "Mains ON,

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Inverter Off", "Battery Charging", "Mains Off, Inverter ON" "Battery Level Xv", "Load X%".

If your Sukam inverter is fully shut down, it runs a series of self-tests on being powered on again. Such automated tests check the various function parameters, displaying them and the results on the LCD panel. Unless there is a problem, you will expect to see 'OK' for each self-test. Even the batteries are protected by the inverter technology developed by Sukam. The battery level is constantly displayed on the LCD panel as one of the alternating messages. In effect, you know when it begins to get low. If batteries have discharged to a low level through use, the inverter will give an alarm to you to reduce the load or shut down. If you don't and it gets to a potentially harmful level, the inverter will shut itself down to protect your batteries. Summary: Sukam inverters run in auto mode, protecting the inverter and battery bank, delivering the power backup you need without manual intervention or disruption of your work and providing you digital information on performance status.

Sukam Power is Pure Sine Wave Power

Best of all, you get pure sine wave power. What is that? Pure sine wave power is identical to or sometimes slightly better than power from the public utility power grid system (that is when the latter is working the way it should be). This is clean, stable power, which sensitive equipment love, because it's equipment-friendly. This is not like the power from the generator, which is not a smooth wave and could easily harm sensitive equipment

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Sukam Benefits

In summary, here are some of what a user will gain from using a Sukam inverter:

- **Extended Power Backup Time:** You simply bank power when available and draw from your reserve when it's gone. Commonsense. The result is you have power for many more hours and can run your activities that require power.
- **Huge Saving:** Inverters are a big money saver! They use power like other equipment you have – nothing excessive. Yet, they give back much more when the power is gone. No running cost. No diesel, no fuel, no oil, no generator repairman, no operator. Only inverter users appreciate the real impact in money-saving.
- **Hassles Gone.** Change-over, start generator, stop generator, top oil, etc, are hassles you won't remember again except you occasionally need to use a generator to charge the system.
- **Clean, Pure Sine Wave Power:** That's 100% pure, reliable and regulated power.
- **Healthy Environment:** No noise pollution, no air pollution.
- **Auto run and LCD Information:** The equipment is not just automated, it also digitally informs you on its operation, gives

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warning when necessary for the protection of the system and can override and short down if battery level is too low.

No Mains Supply at All?

A generator can be run to charge the inverter battery bank, if PHCN forgets your area totally. The difference here is that the power you generate is banked, not wasted. That means that long after your generator has stopped running and burning diesel, you are still enjoying the value of the diesel burnt. So, even in the difficult circumstance of no public supply at all, while you will be forced to still run a generator (the inverter doesn't generate power), you will enjoy much extra mileage from that process. Your invert sucks some of it to charge the battery, allows you put off the generator to save on fuel and wear and tear, and ensures you continue to use power for many more hours.

Estimated Load Capacity

Sukam produces inverters at various capacities to meet users' varying needs. It's ideal for a Sukam engineer to evaluate your need and determine the appropriate capacity of inverter to match it.

Users in the range of 800VA to 10KVA capacities are more common, so here is a rough load chart, showing estimated load for each capacity in that range.

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Inverter Solution – Efficient, Convenient and Cost-effective

INVERTER	BATTERY BANK 200AH/12V	AC	FRIDGE (small)	FREEZER	PC	TV	DISPEN -SER	FAN	DECODER	LIGHT	DVD
800VA/12V	1				1	1		2		3	1
1400VA/24V	2				1	1		4	1	5	1
2.5KVA/48V	4		1		2	2	1	4	1	5	1
3.5KVA/48V	4		1	1	1	1	1	5	1	5	1
5KVA/96V	8		1	1	1	1	1	6	1	6	1
7.5KVA/120V	10	1	1	1	1	1	1	7	1	7	1
10KVA/180V	15	2	1	1	1	1	1	8	1	8	1

This is only an estimate. Appliances can be varied based on need. Higher levels of requirement will need bigger capacities of inverter.

What can be said is that there is a Sukam inverter to meet most user needs. Below are some images (not to scale) of different Sukam models. The specific needs of a prospective user will be evaluated to determine the appropriate capacity. The guide above will however help you assess you need.



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Back-up Span

Most people considering acquiring an inverter want to know how much back-up time it provides on fully charged batteries. We can only speak about the Sukam brand. The short answer is that there is plenty of backup time. It much depends on the load and the state of the batteries. On strong, fully charged batteries and normal load, you should get up to 8 or even more hours of supply.

Where to Power

Your Sukam inverter can power wherever or whatever you need electricity for. That could be in these and more settings:

- **Home:** to power appliances and light up the house.
- **Office:** to provide power for office equipment, lighting and possibly for air conditioners.
- **Church:** Lighting for whole church or section (say, pulpit area, if a low budget capacity is what is possible). Also, the public address system, ensuring that there is no break in flow of minister's message as power failure automatically triggers the inverter on, preventing "break in transmission".
- **Events:** again to supply lighting, cooling (at least fans since ACs require bigger capacity inverters which cost more) and public address system.
- **Schools:** Office computers, computer classroom for computing equipment and library lighting as primary targets. Other areas if it can be afforded.
- **Buildings for Lift Systems:** Prevent trapping with an online inverter system.

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- **Indoor Games Facilities:** Ensure continuous flow of games with online system that ensures no blinking. Backup flood lights with system for continuous non-blinking power supply.
- **Hospitals:** Especially for equipment (like life-support or intensive care systems) where 24/7 power supply is required.
- **Others:** Many other power use situations will benefit with a reliable inverter backup system like Sukam inverters.

Price Structure

Total cost of set-up has the following components:

- Inverter cost
- Cost of battery bank
- Cost of cabling and accessories
- Battery rack, if required
- DC breaker, if required
- Installation cost/labour
- Transportation cost, if applicable

The major cost element is the battery bank because batteries are a bit expensive today and these inverters use the 200AH 12V batteries. The sealed maintenance free batteries are recommended and are used in the cost information below. Note, though, that wet cell batteries are an option and do significantly reduce the cost of set-up since they cost about half of dry cell version.

For the range of 800VA to 10KVA again, we provide current cost profile, showing all items, excluding transportation which depends on

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location. Also, cost of cables is more of a general average, as specific need will depend on the layout of the facility where installation is done. Actual cost may therefore vary.

SUKAM INVERTERS – PRICE CHART 800VA – 10KVA

INVERTER	BATTERY REQT.	INVERTER PRICE	BATTERY COST	CABLES & ACCESSORIES	BATTERY RACK (Optional)	DC BREAKER	INSTALLATION	TOTAL ₦
800VA	1	45,000.00	55,000.00	10,000.00			10,000.00	120,000.00
1.4KVA	2	65,000.00	110,000.00	15,000.00	15,000.00	10,000.00	15,000.00	230,000.00
2.5KVA	4	130,000.00	220,000.00	20,000.00	25,000.00	10,000.00	20,000.00	425,000.00
3.5KVA/48V	4	160,000.00	220,000.00	25,000.00	25,000.00	10,000.00	20,000.00	460,000.00
5KVA/96V	8	235,000.00	440,000.00	30,000.00	30,000.00	10,000.00	25,000.00	770,000.00
7.5KVA/120V	10	330,000.00	550,000.00	80000.00	40,000.00	10,000.00	35,000.00	1,045,000.00
10KVA	15	450,000.00	825,000.00	90,000.00	60,000.00	15,000.00	45,000.00	1,485,000.00

Though these are prices as dictated by today's exchange rate circumstances, if there are reasons you want to discuss any aspect, we are readily available to you.

Warranty

The Sukam inverter is supplied with a full year manufacturer's warranty, fully valid in Nigeria. That largely takes any risk off a buyer. One year of protected use of an equipment is enough indication that the manufacturer is confident of the quality of the product. Any calls in the warranty period will only attract transportation/admin costs.

Installation

Product installation is done by fully trained engineers who will ensure proper installation. That, as would be expected, is a necessary condition for the warranty to apply. We can send installers to any location within the country, at extra cost to the buyer. Specific cost will depend on details of work and location.

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Equipment Support

Trained engineers are on hand to provide this, if the need should arise. Sukam inverters are rugged enough to provide stable service, if user mishandling does not arise. However, should there be any problem, the skills to tackle them are available, locally.

More Information

Though many questions have been answered here, some aspects important to you may still remain. Kindly call us or email for more clarifications: Phone: 01-720 2007, 0702 638 7777, 0805 550 2229
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