

Why choose a transformer-based inverter made in Africa?

SUPERIOR RELIABILITY. EFFICIENCY. SAFETY. SUPPORT.

At MLT Inverters, we know that choosing an inverter can be confusing. Common questions are: 'Is a local inverter better than a foreign equivalent?' 'Should we opt for an inverter containing a low-frequency transformer, one without a transformer (transformer-less), or perhaps one containing a high-frequency transformer?'

We believe that there is a strong argument for choosing a transformer-based inverter, designed and manufactured in Africa. This document explains why.



	High Frequency (HF) Transformer	Transformer-less	Low Frequency (LF) Transformer
Efficiency	✓ ✓	✓ ✓	✓ ✓ ✓
Reliability	✓	✓ ✓	✓ ✓ ✓
Safety	✓ ✓	✓	✓ ✓ ✓
Size & Weight	✓ ✓ ✓	✓ ✓ ✓	✓

	Designed & Manufactured Overseas	Designed & Manufactured in Africa
Designed for African conditions	?	✓
In-depth technical support	?	✓
Excellent after sales support	?	✓

Efficiency

- Transformer-less inverters are only efficient when the battery/solar panel DC voltage is very similar to the output AC voltage, for example when converting 400Vdc solar panel energy into 230Vac.
- When there is a large difference between the DC and AC voltages, for example when converting 48Vdc battery energy into 230Vac, then using a transformer, as a rule, is more efficient.



LF Transformer - Fewer semiconductors, transformer for safety.



Transformer-Less - Lots of semiconductors decrease reliability.



HF Transformer - Lots of semiconductors, high DC voltage on customer side of transformer.



Reliable

The components most likely to fail in a modern inverter are the semiconductor switches. A LF transformer-based inverter has significantly fewer semiconductor switches than the other inverter types. This makes the LF transformer-based inverter an excellent choice as a reliable and robust product in the harshest environments.

Safety

- When semiconductor switches fail, the DC and AC sides of the inverter can potentially be connected (shorted) together, resulting in dangerous conditions.
- In LF transformer-based inverters the DC and AC sides are physically separated by the transformer (galvanically isolated), so even if the semiconductor switches fail the product is still safe. In high frequency transformer-based inverters the AC power is converted back to DC on the AC side of the transformer, negating some of the safety benefits of the transformer.



Designed for African Conditions

MLT Inverters understand the unique challenges facing customers in Africa. In certain areas supply voltages and frequencies vary widely: our inverters can be configured to be less sensitive to unstable grids, to regulate voltage & power quality (Powerstar only), and to integrate seamlessly with generators. Other parts of Africa again strictly regulate inverter specifications: MLT inverters are as comfortable here, when configured to comply to the local standards.

Excellent Support

The Cape Town-based engineering team that design our inverters can be contacted directly for in-depth technical support. By choosing a MLT inverter you are choosing a product from a company that has been manufacturing and supporting inverters in Africa since 1986.



Which transformer-based MLT product is right for me?

	Oasis	Powerstar
Typical Application	Basic residential & commercial UPS / UPS + solar, or off-grid	Premium residential & commercial UPS + solar, or lodge / large farm off-grid
Operation Method	Offline UPS (charger while connected to grid, inverter when grid falls away)	Bi-directional grid-interactive
Rating (DC - AC conversion)	3 to 6kVA	6 to 24kVA
Parallellable	-	Up to 96kVA
AC inputs	1	2
Voltage & Power Quality Regulation	-	Optional
3 Phase Version	-	Yes
Efficiency (DC-AC conversion)	High	Very High
Battery Charge Rate	Up to 50A	Up to 150A per phase
Battery Technologies	Lead-acid, Lithium	Lead-acid, Lithium, VRB
Mounting Method	Wall	Free Standing
Integration with building management system	-	Yes (Modbus)
Solar monitoring (external MPPT required)	-	Yes
Solar Export Limiting	-	Optional
Generator Start / Load Control & Prioritisation	1 Relay	3 Relays



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