

3 Phase On-Line UPS 6-200 KVA



Merlin Series



Sterling in collaboration with Alpha and other various organizations to provide world class products to their customers. Merline represents a large edible bill fish of warm seas, which is a highly priced game fish. Merlin series is equipped with latest technology to compete with the business market.

Highlights of Marlin / Merlin-i UPS:

Flexibility:

1. Inbuilt Isolation transformer
2. IGBT rectifier for clean input
3. ECO technology for high efficiency up to 99%
4. Output power factor: 0.9
5. Smaller foot print
6. Extremely low output voltage distortion
7. Superior battery management
8. Genset compliant with adaptive progressive walk-in and rectifier delay start options.
9. Compatible with all types of industrial load including regenerative load.
10. Parallel up to 6 units for capacity / redundancy

RELIABILITY:

Operating temperature of 0-40°C with special attention in component selection and design to improve reliability

Advance battery management technique to improve battery life with three stage charging and with auto equalizing charge at predefined intervals

Advanced thermal protection of IGBT using on chip built-in temperature sensor.

Applications:

Engineering Industry

Electronics manufacturing

Process industry

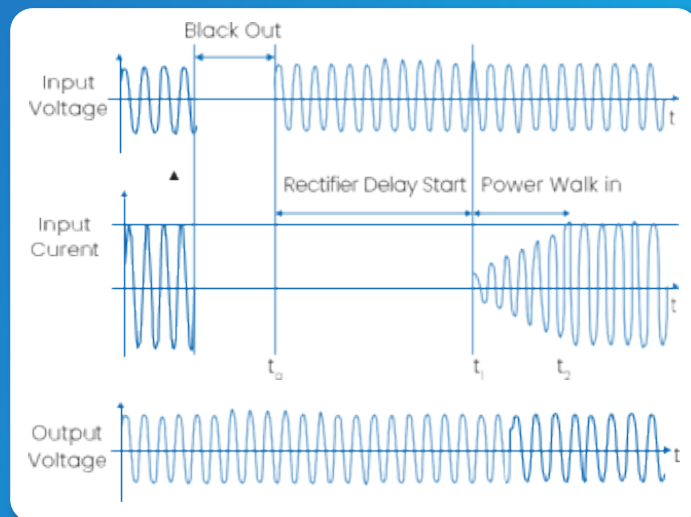
Food & beverage manufacturing

Textiles

Infrastructure

Data centre

RECTIFIER DELAY START



Innovative Product Technology:

IGBT rectifier clean input

Eco mode is an innovative control algorithm applied on the IGBT rectifier (available from 1 to 120 KVA)

This current source rectifier assures

An input total Harmonic Distortion and draws a pure sinusoidal waveform from the mains.

Advantages:

- UPS input performances
- UPS input power factor: 0.99
- Constant behaviour at all loads
- Negligible harmonics contents at full and partial loads.

Digital Signal Processor (DSP)*

DSP (Digital signal Processor) performance enables the high sampling rates required to achieve the appropriate bandwidth for the current and voltage controls for an efficient double conversion UPS.

- High speed sampling rate for precise RPA control
- Faster transient response time
- Redundant high speed communication
- All digital controls for increased reliability and stability
- All system control parameter are adjusted from the front panel

Output Transformer.

The transformer enables the UPS to run with heavily unbalanced loads while supplying full KVA output capacity at 100% non-linear load.

The secondary windings of the output transformer to cancel triplen(third order) load harmonics. This reduces neutral conductor loading and losses in all the conductors and the input transformer. Inverter output transformer inductance filters noise during Eco operation.

- Provides galvanic isolation of the load
- Protects inverter from non-linear loads
- Protects inverter from high inrush loads
- No magnetizing inrush current during eco mode transfers.

Redundant Parallel Architecture (RPA) System Configuration:

Sterling provides RPA, a unique technology that can parallel UPS modules with true redundancy by eliminating any single point of failure. RPA provides a scalable paralleling technique that reduces operating footprint and increases system reliability by eliminating the need for external paralleling equipment and cabinets (centralized bypass and master control).

One of the UPS modules in the system intelligently takes the leadership role, while the other UPS modules have access to all control parameters. If one UPS fails to operate, the load is automatically redistributed among the others. If the lead UPS fails to operate, then another UPS automatically takes on the leadership role. Sterling's RPA technology is implemented by distributing the control electronics within each UPS module in the system.

RPA SYSTEM ADVANTAGES:

1. No Single Points Of Failure

The RPA system provides complete redundancy of all critical components, allows paralleling of up to 6 units for increased load capacity or redundancy.

2. Scalable and Modular:

the system can be easily expanded for higher capacity and redundancy without any interruption to the critical load or transfer to bypass. Redundant communication. Redundant high speed bus and control electronics provide higher system reliability.

3. Distributed Control Logic:

Each module in an RPA system has its own operational controller. Each one continuously communicates with all others in order to manage the entire system like a team.

4. Online Management:

N+1 configurations allow maintenance on any single module in the system while other modules provide online protection with battery backup.

5. Sequential Soft Start:

Provides sequential soft start of each module to reduce instantaneous load on input feeders during mans recovery. This helps avoid over-rating of generator and overheating of cables and fuses.

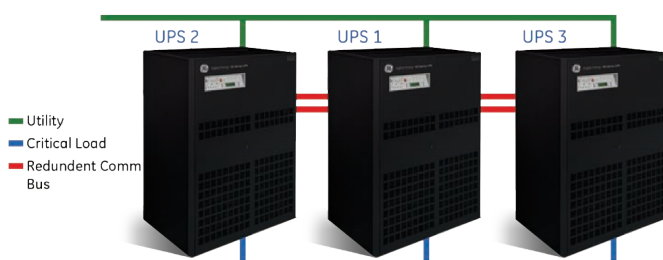
6. Smaller footprint:

RPA eliminates centralized control and external static bypass cabinet.

Sterling's RPA

Standard RPA Configuration:

True Redundancy with Distributed Control & Bypass



Inside Each UPS Module is:

- RPA control/ Communications
- 100% RATED Static Switch

Merlin / Merlin-i Series

SPECIFICATIONS

	6	7.5	10	15	20	30	40	60	80	100	120	160	200
Capacity (KVA)													
Active Power Factor (KW)	0.8 / 0.9 * / Unity (Optional)												

INPUT

Phase	3 Phase + Neutral + Ground
Voltage	415 AC \pm 25%
Frequency	50 Hz \pm 6%
Rectifier	IGBT based
Power Factor	\leq .99

OUTPUT

Voltage	400 / 415 VAC (380 VAC Optional) L-L
Voltage regulation	\pm 1%
Frequency range	50 / 60 Hz \pm 0.5%
Frequency Stability on Battery	\pm 0.05% Hz
Type of Output Power	3 Phase + Neutral + Ground
Waveform	Sinusoidal
Harmonic Distortion	\leq 2% on linear load, \leq 5% on Non-linear load
Overload Capacity	Up to 110% for 60 mins.; Up to 125% for 10 mins. ; Up to 150% for 1 min.*
Crest Factor	3 : 1
Efficiency	Online mode : up to 93%* , ECO mode : up to 99% *
Isolation Transformer	Inbuilt @ inverter

Bypass

Type of Bypass	Static Bypass
Rated Voltage	380 / 400 / 415V (L-L)
Voltage range	\pm 20% (Settable)*
Type of Input Power	3 Phase + Neutral + Ground
Frequency range	50 / 60 Hz \pm 10% (Settable)*
Transfer Time	0 ms with sync.

DC Bus (Battery)

Nominal DC Voltage	192VDC for up to 10 KVA ,240 VDC for 15-20 KVA, 384 VDC for up to 120 KVA / (336 - 384 VDC - settable)*
Battery type	SMF VRLA / Tubular / GEL
Recharging Time	8-12 Hours
Charging	Three stage charging, auto switch floating / equalizing charge*
Battery Self-test	Settable periodic self-test, manually configurable test time and voltage*

Other

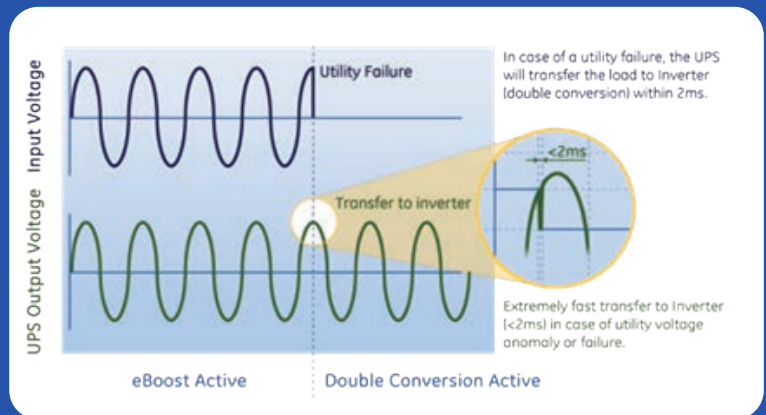
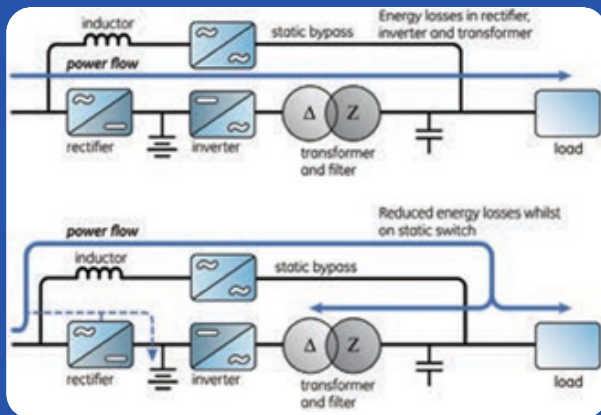
Parallel	up to 6 units, redundant (Optional)*
Display	LCD + LED / Touch Screen (Optional)*
Communication (Optional)	RS232 / RS 485* / SNMP / Dry contact Signals
Cold Start	Standard
Protection	input under / over voltage, over temp., over current, over load, short circuit, DC bus over voltage
Temperature	0 - 40°C
Noise	\leq 65 dB
Altitude	0-2000 m
IP rating	IP20 / IP21
Standards	EMI : EN62040-2
	EMS : IEC61000-4-2(ESD) IEC61000-4-3(RS) IEC61000-4-4(EFT) IEC61000-4-5(Surge)
Humidity	95% Non Condensing

- *On Merlin-i series
- All Specifications are subject to change without prior notice
- Custom made specifications are acceptable.

Inside Each UPS Module is:

Ultra-High Efficiency Mode:

Energy consumption is a critical issue for IT organizations as their datacenter energy demands continue to grow. Their goal is to reduce cost and keep the datacenter running. IT organizations can reduce energy consumption costs without sacrificing system reliability with Sterling's eBoost technology.



Technology Features:

- Up to 99% UPS efficiency
- Compliant to IT(CBEMA) curve during transient events
- Patented power electronics and magnetic ensures less than 2ms transfer time to inverter
- Patented power conditioning/filtering design via bypass inductor and output transformer/capacitor while in ECO mode
- Battery trickle charge in ECO operating mode.

Customer Benefits:

- 80% reduction in UPS losses
- System energy cost savings
- Reduced heat(BTU) generation
- Energy savings from reduced cooling
- Extend UPS component life
- User-programmable scheduling

SERVICES:

Today a business is in always ON mode with zero-tolerance for downtime. Sterling offers a wide range of products that promise seamless quality power solutions for all kinds of consumers-industrial, commercial and residential. The range of power solutions covers 3P, 2P and LI across power needs.

SUPPORT:

Site Inspection, Installation Supervision:

Sterling UPS safe and fault-free operations start at the time of installation. A team of technical experts from Sterling visit the UPS site to perform a comprehensive check of the environment. The site engineer or electrical contractor is informed of their recommendations. The installation is supervised by the Sterling technical team.

Site Test, Commissioning:

After the installations, the UPS is subject to rigorous site tests. The UPS is configured according to users requirements and completely set-up before going live. After successful testing, the UPS is handed over with the installation report.

TRAINING:

On site training is made available to ensure the safe and efficient operations of the equipment. Hands-on training for the clients engineers and technical team can be arranged at Sterling's plant.

MAINTENANCE:

Preventive Maintenance:

Optimal performance of the UPS require regular preventive maintenance operations, with parts replaced when needed. Sterling offers Service Contracts with Preventive Maintenance that include cleaning, UPS measurements, functional tests, technical reports(optional), battery health check up and software upgrades.

Corrective Maintenance, Emergency Call:

Engineers and spare parts stocks have been strategically located to handle emergencies. A powerful diagnostic software helps engineers identify the fault quickly and ensure short MTTR(Mean Time To Repair). The diagnosis further helps corrective actions such as part replacement, adjustments to be performed and return the UPS system back to normal.



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