DALTON

Three Phase Input Single Phase Output UPS.

True Double Conversion Technology.

Online Transformer Based UPS.

2 YEARS WARRANTY

TS31 Series

(10KVA-50KVA)

- Dalton TS31 transformer based has been designed for medical equipment, heating, ventilation and air conditioning equipment, safety and emergency systems, process control devices and machine tooling, critical infrastructures, data centre monolithic power protection. double conversation technology with a very advanced design criteria improves the performance of components, minimizes the quantity of raw material used on the magnetic and reduces the number of semiconductors thus reducing servicing time and ownership costs. This UPS has high efficiency (> 94%) and input power factor (> 0.99). The inverter transformer prevents the direct feed-through of the battery potential into the critical load and allows a very high rejection ratio of the power supply disturbances .

- Built in output isolation transformer.
- True Online true double conversion.
- Output Power Factor 0.8.
- 3 phases input allow 100% unbalance load.
- Fully DSP+ARM Control technology.
- DC cold start function.
- Generator-Friendly Compatibility.
- Dual inputs.
- High overload capacity for heavy duty loads.
- LCD touch screen 7”Inch.
- Compact design to save space.
- ECO mode and EPO function.
- Intelligent RS232/RS485 communication port.
- Advanced no-master-slave parallel technology. (optional)
- Optional SNMP communication port

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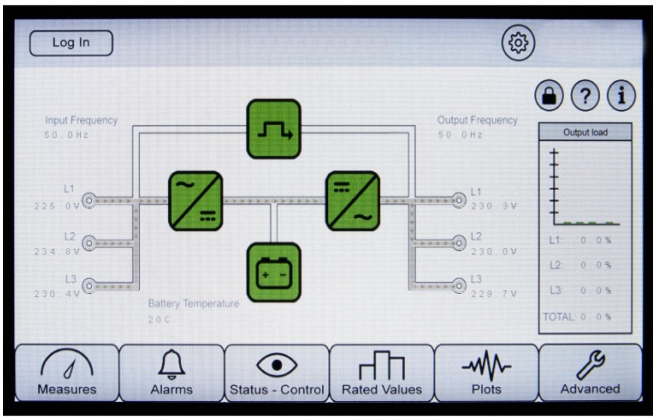
CERTIFIED ISO 9001:2015 COMPANY

CE

Advanced Graphic Touchscreen LCD.

Dalton TS31 precise graphic backlit 7” touchscreen display providing real time status and parameter readings via its own DSP controller.
The EF home screen shows all modular elements of the UPS in a clear and precise manner as well as an overview of the system operation.
An easy to navigate control pad allows for a complete and comprehensive overview of measurements, controls and settings with comprehensive event logging up to 392 event memory record system (total 7000 alarms or warnings)

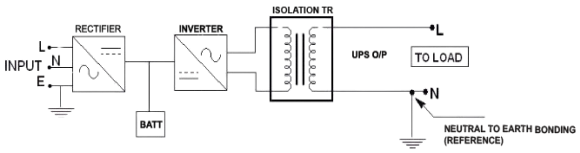


Overall Frontage Maintenance Supported by Design.

The TS31 Series has the most advanced built in management and maintenance system (MMS).
it uses advanced front maintenance design.
convenient for installation and maintenance.
It considers operability of site maintenance for structure design,
The MMS has dynamic self-diagnostics and analyses all the internal sub assemblies, providing the engineer with recommendations on what settings need adjustment and calibration.
Fast PCB replacement with all settings and adjustments are easily uploaded via the engineer’s laptop. The MMS system built into the UPS reduces the mean time to repair (MTTR) by almost half compared to other UPS systems. Four service meters track critical areas within the UPS alerting that maintenance is required.

Isolation Transformer Built In.

Reduce the surge and harmonics
Excellent operating efficiency with written efficiency guarantees
Distortion & noise cancelation
Innovative product technologies that boost efficiency, reliability and lengthen battery life
Damping rush current supported heavy duty



Intelligent Battery Management & Protection.

TS31 a comprehensive and programmable management and monitoring system that protects the UPS battery string life.
Batteries are prevented from overcharging and deep discharging.
Low AC ripple.
Interactive external battery circuit breaker position sensing.
Two stage battery self test, a short test and an intensive test with adjustable test intervals.
Adjustable battery charger system for short and long runtimes.
Battery temperature compensation option.
Calculates true battery autonomy and remaining battery backup time during utility outage.
During UPS startup, the SBM is programmed with specific battery information.

Efficient Energy Saving.

The possibility to control the UPS units, making them work in fewer number (Sleep Mode), means that UPS units work always at maximum efficiency point and so, the system relative consumption is the lowest possible. As a consequence, the TS31 electrical energy consumption and its costs are reduced.

Parallel Systems up to 4 units.

Allows two groups of UPS to be connected in parallel whilst operating, in the event of maintenance (with no interruption to the output), using a power coupling switch. Should one of the UPS in one of the parallel groups fail, it is automatically excluded.
The PSJ connects the remaining UPS, to the other parallel group via an external bypass, in order to continue to guarantee load redundancy

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Advanced IGBT Technology.

TS31 Design power is inverter with full load and supplies maximum
·Charging current for battery.
·Rectifier has the function of power factor
calibration, which can reduce the harmonic distortion of main power to 5% and less. It can ensure that, no matter how is the load, the rectifier cannot cause voltage distortion of main power and can avoid overheat of cable caused by overcurrent of harmonic wave between inverter output and static bypass power supply is realized by controlling circuit through inverter.
When static bypass power frequency is within allowed synchronization range, inverter control circuit always let the inverter output frequency trances static bypass power frequency.

Maximum Reliability and Availability.

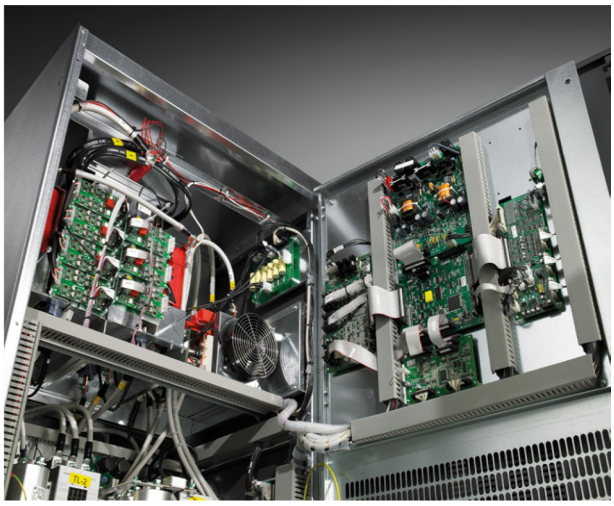
Installation in redundant or power parallel configuration hot system expansion allows the addition of a further UPS into an existing system without the need to switch off the existing UPS or switch to bypass. This guarantees maximum load protection, even during maintenance and system expansion.
Maximum levels of availability, even in the event of an interruption to the parallel bus cable: the system is “Fault tolerant”.
It is not affected by connection cable faults and continues powering the load without disruption, signaling an alarm condition.
Efficiency control mod (ECM).
It optimizes the operating efficiency of parallel systems, according to the power required by the load. N+1 redundancy is guaranteed, with every UPS working in parallel at the best load level possible to achieve higher overall efficiency.

Specific Solutions.

The UPS system can be adapted to meet the most specific requirements. Contact our TEC team to discuss any specific solutions and options not listed in this catalogue.
Also Dalton TS31 allows to remain synchronized even during mains power failure. It also allows the synchronization with any independent power source, generator set and third party UPS.

Flexibility.

TS31 is suitable for a wide range of applications including IT and the most demanding industrial environments.
The UPS is suitable for powering capacitive and inductive loads.
With a broad range of accessories and options, complex configurations and system architectures can be achieved to guarantee maximum power availability, as well as providing the option to add new UPS without interruption to existing installation.



Advanced Communication.

TS31 Data Protection software can communicate with the UPS over RS-232,USB or SNMP to receive status information and measurement values of the UPS. In case of a critical condition (time on battery, remaining battery autonomy time or low battery) for the load, the software starts a controlled shutdown.
ES33 Series comes with internal and external SNMP options with full environmental features.
The UPS has a specially designed USB memory stick to record the internal history of the system, providing a really easy solution for analysing performance and operation.
This also provides much easier way to send the information of UPS faults to the Dalton technical team for analysis if there are any concerns with the UPS operation.
Four fully programmable as standard upgradable to twelve, with over 65 selectable alarms.
Dedicated communication port for service engineer diagnosis and adjustment via laptop or notepad.
Emergency Power Off (EPO) connection for external switching control.
External temperature input monitoring.
Standard dry contact for input/output interface: the dry contacts can be programmed setting different meaning of the contacts.

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Technical Specifications

Model	TS31L10000	TS31L15000	TS31L20000	TS31L25000	TS31L30000	TS31L40000	TS31L50000
Rating Power	10 KVA 8 KW	15 KVA 12 KW	20 KVA 16 KW	25 KVA 20 KW	30 KVA 24 KW	40 KVA 32 KW	50 KVA 40 KW
INPUT							
Rated voltage	(380 V / 400 V / 415 VAC) - (220 / 230 VAC)						
Voltage range	346 V ~ 456 V (full load) 160 V ~ 290 V (full load)						
Rated frequency	50 / 60 Hz						
Frequency range	50 / 60 Hz ± 5 Hz						
Power factor	≥ 0.99						
Total harmonic distortion (THDI)	≤ 2%						
Input current-limiting	1.1 times of rated current (0.1 ~ 1.1 settable)						
Rectifier delay start	10 s (1 ~ 300 settable)						
Bypass voltage range	± 20% (settable)						
OUTPUT							
Rated voltage	200 / 208 / 220 / 230 VAC . Adjusted						
Voltage regulation	± 1%						
Frequency	Synchronized with utility in mains mode; 50 / 60 Hz ± 0.1% in battery mode						
Waveform	Pure sinewave						
Crest factor	3:1						
Total harmonic distortion (THDV)	≤ 1% (Resistive load); ≤ 3% (non-linear load)						
Unbalanced load	100% - independent phase regulation						
Transfer time	0 ms						
Inverter overload capability	Load ≤ 105%， long time work: 105% < load ≤ 110%， transfer to bypass in 60 min 110% < load ≤ 125%, transfer to bypass in 10 min 125% < load ≤ 150%, transfer to bypass in 1 min 150% < load ≤ 200%, transfer to bypass in 200 ms 200% < load, inverter off (UPS shutdown) in 100 ms and transfer to bypass output						
Slight adjustment of inverter output voltage	± 5 V						
BATTERIES							
DC voltage	360 VDC (Support 336 ~ 384VDC settable)						
Number of battery	30 pcs (Support 28 ~ 32 pcs settable)						
Charging current	Charging rate (settable) × battery capacity (settable) × number of battery group (settable)						
Battery state display	Battery remaining capacity and backup time						
Battery self test	Settable periodic self-test; manually configurable test time and voltage						
SYSTEM							
Efficiency	Line mode ≥ 94%, ECO mode ≥ 98%						
Max. parallel numbers	Up to 4 units parallel						
Protections	Short-circuit, overload, over temperature, overvoltage, under voltage, battery low voltage and fan failure						
Communications	RS232 / RS485 / dry contacts (standard), SNMP (optional)						
IP rating	IP 20						
Positioning	Min. 20cm rear space for fan ventilation						
Display	7 inches LCD touchscreen						
OTHERS							
Operating temperature	0 ~ 40℃						
Storage temperature	- 25℃ ~ 55℃ (without battery)						
Humidity	0 ~ 95% (non-condensing)						
Altitude (AMSL)	< 1000 m without power reduction, > 1000 m with reduction of 0.5% per 100 m						
Noise level at 1 m	< 55 dB				< 60dB		
Dimensions (W×L×H) (mm)	450×790×1150	550x360×899			650×710×1150		
Net weight (kg)	110	145	154	195	227	269	390
Gross weight (kg)	118	160	169	210	245	287	410

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