# DALTON

## Smart Online Single Phase UPS
## Double Conversion Technology
## Pure Sine Wave

### U10 Series
(1,2,3,6,10KVA)



Dalton U10 is aspire to introduce the latest DSP true on-line double conversion UPS for protecting small and medium sized mission medical, critical & IT loads so as, The robust design is also suitable for more traditional, industrial applications. Both to safeguard your valuable equipment and critical data from any interrupted power, such as surges, blackouts and lighting strikes.

- True double conversion
- Advanced DSP and 3-level technology
- High efficiency 95% (up to 98% in ECO mode)
- Full digital control system
- Maintenance Bypass Switch
- Dual-input design, supporting independent bypass
- Optional SNMP Communication Port
- Transformer less UPS Technology
- Generator compatible
- USB standard Communication port

- Transformer less UPS Technology
- Unity output power factor 1
- Low input current value (THD<3%)
- Cold Start Function
- Automatic Battery Test
- Wide input range
- 15 Years Spare parts Support
- Voltage Regulation within 1%
- Flexible battery configuration (settable 16 - 20 pcs batteries)

## LCD Smart Display

**Dalton U10** Series The front display panel LCD+LED display, multifunctional keys operation, friendly human-machine interface.

Provides all major systems parameters and operational status of the UPS that include full diagnostics for simple, easy servicing.

The U10 series UPS with DSP control, systematically checks each component and displays the result using on LCD display.

This feature allows service technicians the ability to pinpoint and repair the UPS very quickly.

## Simple Network Management Protocol (SNMP)

**U10** provide SNMP card, it has the function to remote monitor and control UPS, warning notifications through broadcast and mobile phone, multi-shutdown PCs, and schedule UPS self-test.

This unique software provides complete power protection for computer system during power failure.

The software supports lots of O/S including Windows family, Linux, FreeBSD.

More than that, to offer Increased benefits for our customers, we have also released USB version MAC version on the internet.

- Power flow display for monitoring UPS status.
- Scheduled system shutdown/restart.
- Scheduled UPS test.
- Warning notification via E-mail / SMS.
- Warning notification via Broadcast.
- Password security protection.
- Remote Monitor / Control via LAN.
- multi-shutdown PCs, and schedule UPS self-test.
- Secure communication over VPN.
- The alphanumeric display provides very detailed information about measures, state and alarms, available with 8 different languages.
- SNMP gateway server will be installed locally to communicate with SNMP cards of UPS
- Windows family; Linux; Sun Solaris 7/8/9; IBM AIX 4.3x, 5.1x; Compaq True64; HP Unix; FreeBSD; HP -UX 11.x and MAC

## Advanced Communication

Communication is cross-platform and supports all operating systems and network including monitoring software, UPSMON shut down with SNMP agent too.

There are 3 slots available for installation of optional communication accessories such as network adapters, free contacts, etc.

There are hardware devices available optional like:

REPO (Remote Emergency Power Off) for emergency switch off the UPS through emergency button; connection of the auxiliary contact of an external manual bypass; input for synchronization from an external power source.

### Direct Connection with Ethernet Network

This user-friendly monitoring tool enables you to monitor and manage your UPS system as an integral part of your power infrastructure.

It collects data through the network, then stores it in a database for viewing and analysis.
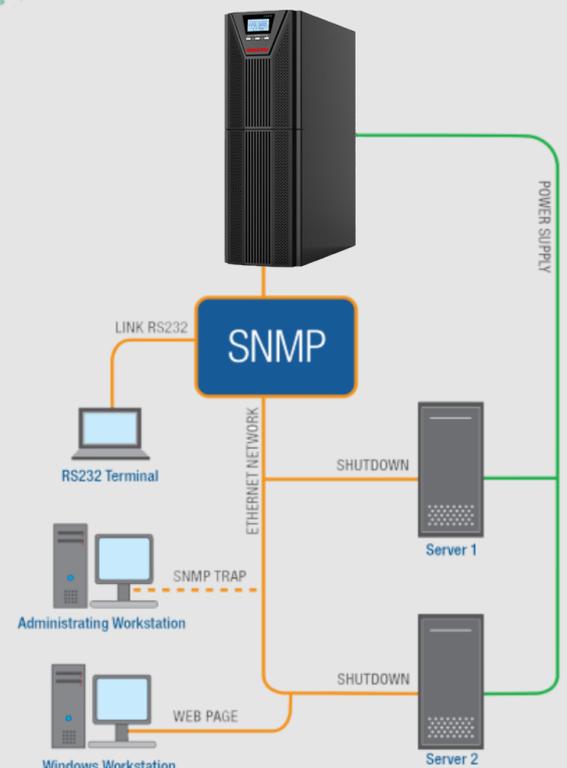
# Double Conversion Online Topology with Unity Power Factor

Dalton is proud to present the true online topology uninterruptable power supply, the U10 series, designed in tower form provides continuous pure sinewave power with its peak unity power factor 1 double conversion technology and high frequency design,

With its market leading performance, the U10 series is the ideal power solution for net-work server rooms, cloud execution and storage systems, telecommunication centers, sensitive and critical electronic systems, or any system requiring high capacity and stable power supply.

## The Most Compact Design and Minimizing TCO

The smallest dimensions in its class saves significant space for more critical equipment.

A pioneer in unity power factor (kVA=kW) to maximize power availability.

The highest AC-AC efficiency up to 95% and efficiency of 98% in ECO mode for exceptional energy cost savings.

Automatic speed regulation function with multi-stage fan speed control maximizes system efficiency, significantly reduces audible noise, and prolongs the service life of the fans.

## Intelligent Battery Management & Protection

Proper battery care Is critical to ensuring correct UPS operation in emergency conditions.

Deep discharge protection.

Low AC ripple with automatic and manual battery test.

Interactive external battery circuit breaker position sensing interactive battery circuit breaker control.

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.

Unlimited extendible runtime using matching battery packs.

## Maintenance Bypass Switch

The maintenance bypass switch located on the rear of the unit is internally interlocked with the static transfer switch. Removal of the secure panel will safely activate the internal bypass and protect the UPS from misuse.

## Redundant Parallel Architecture

Up to 4 units Dalton U10 can be connected in parallel 6kVA to 10kVA, UPS in parallel configuration to meet most demanding power requirement.

Increase power availability and flexibility.

Parallel Redundancy features provides economic power solution for system integration.

Furthermore, parallel redundancy feature equally share the load to maximize UPS performance and more secure UPS continuous operation.

**PARALLEL REDUNDANCY**

Inpot Switch Board

Parallel Operation Up To 4 Units
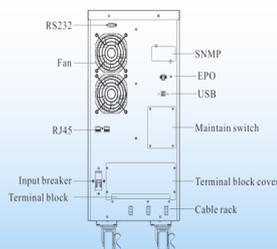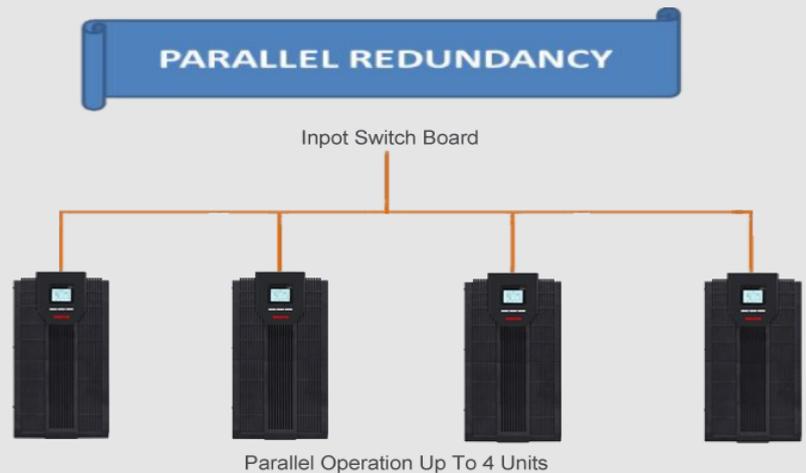
## Front & Rear Panel Explanation

RS232
Fan
RJ45
Input breaker
Terminal block

SNMP
EPO
USB
Maintain switch
Terminal block cover
Cable rack

Computer Interface
Intelligent Slot
RJ45
Output German Socket
External Battery Connector
Input

Dalton U10 Front of the contain only the LCD display.

The back of the UPS consists of the following parts, user interface:

USB for smart connection interface terminal resistor for parallel function CAN Bus connection port for parallel system customer options slot 1 customer options slot 2 cooling fan external battery connector external charger Connector utility input breaker CB1 bypass input breaker CB2 (for dual input model only) CAM Switch (maintenance bypass switch) Input / output terminal block EPO (Emergency power off) Air ventilation .
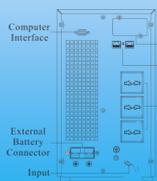
# Technical Specifications

| Model | U10 1K | U10 1KS | U10 2K | U10 2KS | U10 3K | U10 3KS | U10 6K | U10 6KS | U10 10K | U10 10KS |
|---|---|---|---|---|---|---|---|---|---|---|
| **Power Rating** | 1KVA / 1000W | | 2KVA / 2000W | | 3KVA / 3000W | | 6KVA / 6000W | | 10KVA / 10000W | |

## Input

| | | |
|---|---|---|
| **Input system** | Single phase with ground Single (1Φ + N + PE) |
| **Rated voltage** | 208V/220V/230V/240V |
| **Voltage range** | (110±5)VAC~ (2288±5)VAC |
| **Power factor** | ≥0.99 |
| **Frequency range** | 40 ~ 70 Hz |
| **Rated frequency** | 50 / 60 Hz (auto-sensing) |
| **Voltage range of bypass** | (- 25% ~ +15% (settable) Easy software adjusted) [for 1K-3K] ; (- 40% ~ +15% (settable) Easy software adjusted) [for 6K-10K] |
| **Total harmonic distortion (THDi)** | ≤ 6% [for 1K-3K] ; ≤ 5% [for 6K-10K] |

## Output

| | |
|---|---|
| **Output system** | Single phase with ground Single (1Φ + N + PE) |
| **Rated voltage** | 208V/220V/230V/240V |
| **Power factor** | 1 |
| **Voltage precision** | ±1% |
| **Total harmonic distortion (THDv)** | ≤ 2% at linear load    105% ~ 125% for 1 min, 125% ~ 150% for 30 s, > 150% for 300 ms ≤ 1% at linear load |
| **Output waveform** | Pure Sinewave |
| **Frequency** | Synchronized to bypass in mains mode; 50 / 60 Hz ± 0.1% Hz in battery mode |
| **Efficiency — ECO mode** | 96% [1K-3K] ; 98% [6K-10K] |
| **Efficiency — Online mode** | 94% [1K-3K] ; 95% [6K-10K] |
| **Inverter overload capacity (Utility power, 25°C)** | 100% ± 5% < Load ≤ 105% ± 5% Overload warning only, 105% ~ 125% for 1 min, 125% ~ 150% for 30 s, > 150% for 300 ms |
| **Transfer time** | 0 ms |
| **Crest factor** | 3:1 |

## SYSTEM

| | |
|---|---|
| **Maximum parallel units** | Up to 4 units parallel optional |
| **Communications** | USB, RS232 (standard), RS485 / dry contacts / SNMP / CMC Card / EMD Monitoring Device (optional) |
| **Communication software** | Windows XP/ 2003 and later version; Linux; Unix |
| **Display** | LCD + LED |
| **LCD Display** | AC/ DC voltages; kVA/ kW; Frequency; Temperature; Battery & load level |
| **LED Status Indicator** | Utility power; Battery discharge; Inverter On |
| **Alarms** | Overload, overtemperature, battery low voltage, overvoltage, undervoltage and fan failure |

## General

| | |
|---|---|
| **IP Rating** | IP 20 |
| **Storage temperature** | -25°C ~ 55°C (without batteries) |
| **Operating temperature** | 0°C ~ 40°C |
| **Humidity tolerance** | 0-95% (no condensing) |
| **Noise Level** | <50dB [1K-3K] ; <55dB [6K] ; <58dB [10K] |
| **Standards** | EN 62040-1, EN 62040-2, EN 61000-3-2, EN 61000-3-3, IEC 61000-4-2, IEC61000-4-3, IEC61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11, IEC 61000-2-2, IEC 62040-2, IEC 62040-1, IEC 62040-3 |
| **Altitude** | ≤ 1000 m, derating 1% for each additional 100 m |

## Battery

| | U10 1K | U10 1KS | U10 2K | U10 2KS | U10 3K | U10 3KS | U10 6K | U10 6KS | U10 10K | U10 10KS |
|---|---|---|---|---|---|---|---|---|---|---|
| **Charging time** | < 8 hours | | | | | | | | | |
| **DC Voltage** | 24/36VDC | | 48/72VDC | | 72/96VDC | | 192/240VDC | 240VDC | 192/240VDC | 240VDC |
| **Battery Type** | Sealed maintenance free lead acid / NiCd / Li battery | | | | | | | | | |
| **Battery audible alarm** | Normal Sounding every 4 seconds, Low battery sounding every second | | | | | | | | | |
| **Battery quantity** | 2/3 | None | 4/6 | None | 6/8 | None | 16/20 | None | 16/20 | None |
| **Charge current** | 1A | 6A | 1A | 6A | 1A | 6A | 1A | 5A | 1A | 5A |
| **Part number** | U10K1000 U10KS1000 | | U10K2000 U10KS2000 | | U10K3000 U10KS3000 | | U10K6000 | U10KS6000 | U10K10000 | U10KS10000 |
| **W*D*H (mm)** | 143×314×217 | | 143×418×217 | | 190×419×333 | | 193×466×713 | 191×465×355 | 193×497×713 | 191×465×355 |
| **Weight (kg)** | 10 | 4 | 16.5 | 6.5 | 23 | 6.6 | 53 | 15 | 63 | 16.7 |

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