

# The OL3T™ Series

E2L™

P225E



## Modular Centralised Large Scale Low Frequency UPS with Galvanic Isolation for Industrial Applications from 10 KVA to 4,800 KVA

The OL3T™ UPS (ESI) is a modular and centralised 3 phases unit designed in modules from 10 to 800 KVA per unit. Up to 6 units can be placed in parallel to achieve N+X Redundancy and reach a maximum Power of 4800 KVA.

The OL3T™ uses low frequency technology coupled with an output isolation transformer to insure total galvanic isolation between input and output.

The OL3T™ Series is ideal for use in applications where possible reverse power from the load to the UPS may occur. This is the case when powering motor loads like elevators, escalators, funiculars etc...

An optional Current absorption device is available to further absorb such reverse power in order to protect the UPS circuitry. in the event of large reverse power applications.

The OL3T™ UPS Series exceptional design allows to instantly upgrade in power capacity, reliability, and runtime by adding Power or Battery modules.

The OL3T™ is ideally suited for industrial applications where galvanic isolation is required or in applications where reverse power is probable.



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- **Total Galvanic Isolation**
- **Reverse Power Proof**
- **Fully scalable up to 4.8 MW**
- **N+X redundancy**
- **Up to 95 % efficiency**

## The OL3T™ Unmatched Features

**The OL3T™ UPS Series is engineered to accept low quality input power in either one or 2 feeders. The OL3T is designed to power highly critical industrial loads providing outstanding power quality to the user.**

### **Any quality of input power is acceptable:**

The OL3T™ accepts almost any quality of input with voltage per phase ranging from 173V to 280V and frequency variations from 45Hz to 65 Hz.

### **Generator control:**

When used as part of a turnkey E24 Energy Conversion Solution, the OL3T™ includes the controls to automatically start and stop an auxiliary generator in the event where the power drawn by the load either exceeds a preset level of current discharge of the batteries or a preset level of battery capacity.

The preset state of charge can be set to trigger the starting of the generator when the batteries have reached a preset level. This preset level can be set to a depth of discharge ranging between 30% and 80%. The lower the depth of discharge set, the higher the runtime on batteries before the generator starts but the shorter the number of cycles that the battery can deliver (shorter battery lifetime). Refer to E24 related battery data sheet for details.

The OL3T™ automatically shuts down the generator when the load is decreased below the preset maximum load or when the battery capacity is restored to a preset level.

### **Double Conversion and Galvanically Isolated from the grid:**

The OL3T continuously feeds the load from the batteries while recharging them with the exact same energy discharged (100% on-line double conversion topology). This means that the load is constantly being powered by a freshly synthesized sine wave of the purest quality in order to be 100% isolated from any grid disturbance, surge, brownout or harmonics.

In addition, the OL3T Series includes an output transformer to further galvanically isolate the load from the grid or from the generator.

The OL3T includes the option to deactivate the double conversion topology and may be operated in green function mode to save about 3% on the double conversion efficiency.

### Three Phase load balancing technology:

It is common to trip the main utility or the generator breaker due to one of the phases being overloaded. The OL3T UPS includes the technology to equally distribute the load on the three input phases equally in a manner to delay tripping the utility or generator breaker until the three phases reach simultaneously their maximum allowed threshold. This function is extremely valuable for customers with limited available utility breakers or slightly under-sized generators.

### Power Factor Correction:

Analog utility KWH meters do not record accurately KWH. Under low power factor operation, some analog meters record KVAH rather than KWH which substantially increase the utility bill especially under brownout conditions.

Diesel generators consume fuel in proportion to the KVA loads rather than KW. Correcting the load to unity power factor may decrease fuel consumption by up to 50%.

The OL3T™ UPS includes DSP technology allowing to correct the input power factor to be above 0.95 when the load power factor is above 0.8. This will substantially save on both the utility and generator bill.

### Touch Screen LCD:

The OL3T™ UPS series include a touch screen LCD display with an intuitive menu displaying detailed data about the system.

### N+X parallel redundancy

Up to 6 modules of OL3T units can be connected in parallel redundancy mode to reach up to 4.8MVA of Total Power. This means that if any UPS fails, the system will continue to operate normally (after sounding an alarm) with the only consequence of a decrease in maximum power equal to the power of the failed unit. System will continue operating seamlessly until the failed unit is repaired.

### DSP Technology

The OL3T™ UPS is built on advance Digital Signal Processing technology in order to provide high performance steady and accurate operation over its lifetime while offering outstanding efficiency (above 92% in online mode).

### Intelligent Battery Management

The OL3T™ UPS includes an intelligent battery charger that includes a float/boost charger and a dynamic cut-off level that reduces battery maintenance and improves battery life.

### Flexible Battery Configuration

The OL3T™ UPS series can be programmed to operate on a variable number of batteries. This means that in case one or more batteries are damaged, the OL3T™ UPS can be programmed to operate on less batteries until the damaged battery is replaced avoiding any downtime.

### Strong Overload Capability

The OL3T™ UPS is capable of handling overloads of 110% / 125% / 150% for 60min / 10min / 1 min respectively.

### Power Walk In

Power Walk In function allows the rectifier of each unit to be turned on progressively and in sequences in order to avoid the sudden load on generators.

### Generator Mode

The OL3T™ Series can be ordered with dry contacts to prevent the UPS of charging when the generator is operational.

### Emergency Power Off (EPO)

The OL3T™ Series is equipped with a concave red EPO button with transparent cover built into the control panel for emergency power off.

### Comprehensive Communication Options

Communications options include: RS232, RS485, Modbus, SNMP adaptor, Dry Contacts.

### Low input current total harmonic distortion (THDi)

The OL3T™ UPS Series actively manages the input current total harmonic distortion (THDi) at a low level (2 percent at 100 percent load). E24's unique technology neutralizes the emission of harmonics at the input of the UPS system, providing greater reliability of operations for circuit breakers and extending the overall service life of the equipment. Low harmonic distortion saves unnecessary over sizing of gensets, cabling and circuit breakers, avoids extra heating of input transformers and extends the overall service life of all UPSs components.

### Fan Speed Regulation

The UPS is equipped with fan speed control allowing it to reduce fan speed during low load conditions or when UPS temperature is within range.

### Latest Technology

The OL3T™ UPS Series operates latest Sinusoidal Pulse Width Modulation (SPWM) to control Power IGBTs to reach the highest efficiencies, reliability and long life.

### Easy Service

Rectifier, Static Switch, and Inverter modules are designed separately on separate heat sinks allowing easy service.

### Automatic Restart

In the event of a UPS shutdown due to low battery, the UPS will automatically restart when input power is restored.

## Current Absorption Device (Option)

The OL3T™ UPS Series is built into compact cabinets allowing to increase power capacity or reliability at will.

Current Absorption Devices are optional units that can be connected to the UPS in order to absorb and consume any reactive power return to the UPS from the load.

This is often the case when the UPS is required to power a motor like in escalators, elevators, cable cars or funiculars. When the motor is disconnected, it acts as a generator returning power to its source. Regular UPS systems will often either get damaged or shutdown once they detect returned power from the load.

In the event of such loads are connected to the UPS, the Current Absorption Device (CAD) may be connected to the OL3T UPS in order to absorb the returned power and insure continuous smooth operation of the load and UPS.



## E24 Business Flexibility Programs

### Upgrade as you grow

The OL3T™ UPS series can be upgraded by adding UPS Units. You may start with one UPS and upgrade by adding up to 5 more units in parallel to increase total power capacity.

The flexibility to add additional UPS units allows to dynamically adjust the power availability in proportion to the expansion of the load without tying down capital.

### Remote Service Agreements

E24 offers Remote Service Agreements. Through this program E24 monitors the good health of your equipment remotely and advises you before hand if any service is required.

### Financing

E24 offers financing programs allowing you to immediately benefit from E24 Technology while spreading your payments on up to 5 years (Programs may be applicable to certain countries only).



# Technical Specifications

Model #		OL3T-10KI, 20KI,30KI,40KI,60KI,80KI,100KI,120KI,160KI,200KI,250KI,300KI,400KI,500KI,600KI,800KI
Capacity (KVA)		10,15,20,30,40,60,80,100,120,160,200,250,300,400,500,600,800
General	Efficiency(%)	up to 92 %
	Maximum Parallel Units	6
	Transfer time (ms)	0
Input	Rated input voltage (Vac)	380/400/415/440 - 5 Wires: 3PH+N+PE
	Operation voltage range (Vac)	176~276 (PH-N)
	Operating frequency range (Hz)	45-65
	Power factor	≥0.95
	Current harmonic distortion	<2% (100% Linear load), <5% (50% Nonlinear load)
	Back feed protection	Supported
	Generator in	Supported
	Power Walk in	Supported
	Bypass	Rated (Vac)
Operating voltage range		Lower limit:-30%, upper limit:+20% (can be set via PC)
Synchronous tracking range (Hz)		Highest 3Hz (can be set via pc)
Bypass operation range (Hz)		Highest±2%0% (can be set via pc)
Back feed protection		Supported
Output		Rated (Vac)
	Frequency (Hz)	50/60Hz
	Power factor	0.8 (leading and lagging load)
	Voltage harmonic distortion	<2% (100% Linear load), <3% (100% Nonlinear load)
	Voltage regulation	<1%
	Overload	load ≤110%, 60 min, ≤125%, 10 min, ≤150%, 200 min,
	Battery	Battery voltage (Vdc)
Maximum charging power (KW)		5% of Unit Power (May be customized in factory).
Environment		Operating temperature (°C)
	Storage temperature (°C)	-20~+55 (without battery)
	Humidity range	0~95%(no condensation)
	Altitude	<1500m, exceed 1500m derating use per GB/T 3859.2 regulations
	Noise level (dB) (1meter)	<65 for units <200KVA, <70 for 300,400KVA Units, < 75 for Units > 400KVA
	Indice of Protection	IP20
	Function	Alarm function
Protective function		Short circuit, overload, main feedback protection, bypass feedback protection
Communication function		CAN, RS232, Modbus card, SNMP card, dry contact card
Emergency power off		YES (local and remote)
Mechanical Property	Dimension (WxDxH) (mm)	300x600x810 for 160KVA to 250KVA, 840x1035x1800 for 300KVA, 1200x1000x1800 for 400KVA, 1400x1000x1900 for 500KVA, 2400x1200x1950 for 600KVA, and 2400x1200x1950 for 800KVA
	Weight (kg)	84,106,113,177,195,270,344,520,605,702,800,980,1750,2000,2600,3200,3400
	Operative norm	YD/T 1095-2017

SH-UPS™



OLC-UPS™



OL3MC-UPS™



**E24 offers a wide range of UPS Systems, batteries and related accessories from 600VA up to 10MVA.**

# **E24 Offers a Comprehensive and Modular Range Of Products For Building Easy, Flexible & Evolutive Solutions in Energy Generation, Conversion and Storage**

**E24 products dynamically evolve with the lifestyle and workstyle of its customers while easing the installation process.**

**E24 products are conceived in modules allowing for an easy upgrade to adjust with the needs of the customers.**

**Being modular and easy to connect E24 products allow installers to easily configure the required modules for an optimal solution while offering easy upgrade options.**

**[www.e24solutions.com](http://www.e24solutions.com)**



## Ordering Information

Ref Number	Description
OL3T-10KI	On-Line Low Freq. UPS, with Output Isol. Xfrmr for backfeed protection, 10KVA, 3ph. Input, 3 ph. Output, 400 V, 50/60Hz (without batteries)
OL3T-20KI	On-Line Low Freq. UPS, with Output Isol. Xfrmr for backfeed protection, 20KVA, 3ph. Input, 3 ph. Output, 400 V, 50/60Hz (without batteries)
OL3T-30KI	On-Line Low Freq. UPS, with Output Isol. Xfrmr for backfeed protection, 30KVA, 3ph. Input, 3 ph. Output, 400 V, 50/60Hz (without batteries)
OL3T-40KI	On-Line Low Freq. UPS, with Output Isol. Xfrmr for backfeed protection, 40KVA, 3ph. Input, 3 ph. Output, 400 V, 50/60Hz (without batteries)
OL3T-60KI	On-Line Low Freq. UPS, with Output Isol. Xfrmr for backfeed protection, 60KVA, 3ph. Input, 3 ph. Output, 400 V, 50/60Hz (without batteries)
OL3T-80KI	On-Line Low Freq. UPS, with Output Isol. Xfrmr for backfeed protection, 80KVA, 3ph. Input, 3 ph. Output, 400 V, 50/60Hz (without batteries)
OL3T-100KI	On-Line Low Freq. UPS, with Output Isol. Xfrmr for backfeed protection, 100KVA, 3ph. Input, 3 ph. Output, 400 V, 50/60Hz (without batteries)
OL3T-120KI	On-Line Low Freq. UPS, with Output Isol. Xfrmr for backfeed protection, 120KVA, 3ph. Input, 3 ph. Output, 400 V, 50/60Hz (without batteries)
OL3T-160KI	On-Line Low Freq. UPS, with Output Isol. Xfrmr for backfeed protection, 160KVA, 3ph. Input, 3 ph. Output, 400 V, 50/60Hz (without batteries)
OL3T-200KI	On-Line Low Freq. UPS, with Output Isol. Xfrmr for backfeed protection, 200KVA, 3ph. Input, 3 ph. Output, 400 V, 50/60Hz (without batteries)
OL3T-250KI	On-Line Low Freq. UPS, with Output Isol. Xfrmr for backfeed protection, 250KVA, 3ph. Input, 3 ph. Output, 400 V, 50/60Hz (without batteries)
OL3T-300KI	On-Line Low Freq. UPS, with Output Isol. Xfrmr for backfeed protection, 300KVA, 3ph. Input, 3 ph. Output, 400 V, 50/60Hz (without batteries)
OL3T-400KI	On-Line Low Freq. UPS, with Output Isol. Xfrmr for backfeed protection, 400KVA, 3ph. Input, 3 ph. Output, 400 V, 50/60Hz (without batteries)
OL3T-500KI	On-Line Low Freq. UPS, with Output Isol. Xfrmr for backfeed protection, 500KVA, 3ph. Input, 3 ph. Output, 400 V, 50/60Hz (without batteries)
OL3T-600KI	On-Line Low Freq. UPS, with Output Isol. Xfrmr for backfeed protection, 600KVA, 3ph. Input, 3 ph. Output, 400 V, 50/60Hz (without batteries)
OL3T-800KI	On-Line Low Freq. UPS, with Output Isol. Xfrmr for backfeed protection, 800KVA, 3ph. Input, 3 ph. Output, 400 V, 50/60Hz (without batteries)
OL3T-CAD1-20KI	Current Absorption Device, 384Vdc, 20KW
OL3T-CAD1-30KI	Current Absorption Device, 384Vdc, 30KW
OL3T-CAD1-40KI	Current Absorption Device, 384Vdc, 40KW

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ISO 9001:2015



QUALITY STANDARD

