

The OL3MC™ Series

E2L™

P225E



Modular Centralised Large Scale UPS for Industrial, Enterprise and Utilities Applications from 300KVA to 3000KVA

The OL3MC™ UPS (ESI) is a modular and centralised 3 phases unit designed in 300, 400 and 500KVA Modules where the interaction of multiple energy sources: solar PV, wind, auxiliary generator, main utility is required. The OL3MC™ UPS is used as part of a turnkey solution allowing to combine multiple energy sources in a manner to optimise energy costs while maximizing uptime and power quality to the load.

The OL3MC™ UPS Series exceptional design allows to instantly upgrade in power capacity, reliability, and

runtime by adding Power or Battery modules.

The OL3MC™ is protected against reverse energy supply while being extremely robust and reliable. The OL3MC is ideally suited for industrial applications where high inrush current are drawn. It is possible to configure the OL3MC to power loads from 300KVA to 3000KVA per system (up to 6 modules can be connected in N+X parallel redundant topology).

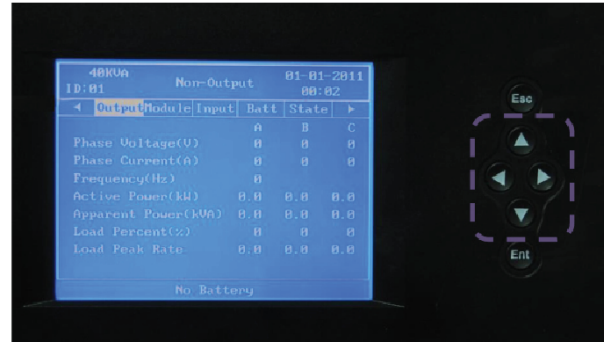
The OL3MC™ UPS Series

The OL3MC™ UPS Series is a modular decentralised UPS system built in modules of 300KVA, 400KVA and 500KVA each allowing to reach a total capacity of 3000 KVA (6 Modules of 500KVA). The OL3MC™ is highly compact and efficient allowing substantial savings in space and energy.

The OL3MC™ UPS Series exceptional design meets all modern requirements of building and operating energy efficient and environmentally friendly homes, buildings, business and industrial applications. The OL3MC™ UPS Series employs transformer less double conversion UPS topology and is available in one high compact frame that can be easily connected together to form an N+X Modular redundant system.

The E24 OL3MC™ UPS Series is designed with the flexibility to accommodate an increase in power, reliability level, runtime, or renewable energy capacity by simply adding a module.

Easy installation and maintenance was at the base of the design for this UPS system with front access to electrical connections and fully serviceable components.



- **Up to 95 % AC–AC efficiency**
- **Unity input power factor**
- **Fully scalable up to 3 MW**
- **N+X redundancy**
- **Hot-swappable Power Modules**

The OL3MC™ Unmatched Performance

The OL3MC™ UPS Series is engineered to accept low quality input power in either one or 2 feeders. The OL3MC is designed to power highly critical industrial loads providing outstanding power quality to the user.

Any quality of input power is acceptable:

The OL3MC™ accepts almost any quality of input with voltage per phase ranging from 150V to 280V per phase and frequency variations from 40Hz to 70 Hz.

Programmable priority of energy sources:

When used as part of a turnkey E24 Energy Storage Solution, the OL3MC™ may be programmed by default to route the renewable energy generated on priority to the load, then to the batteries. Any unused renewal energy generated is feedback to the grid for Net-metering benefits. Other priority configurations can be programmed at will.

Generator control:

When used as part of a turnkey E24 Energy Storage Solution, the OL3MC™ 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 load reaches a level that will deplete the batteries in less than 3 to 8 hours.

The preset state of charge that will trigger the starting of the generator 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 de-liver (shorter battery lifetime). Refer to our battery brochure for details.

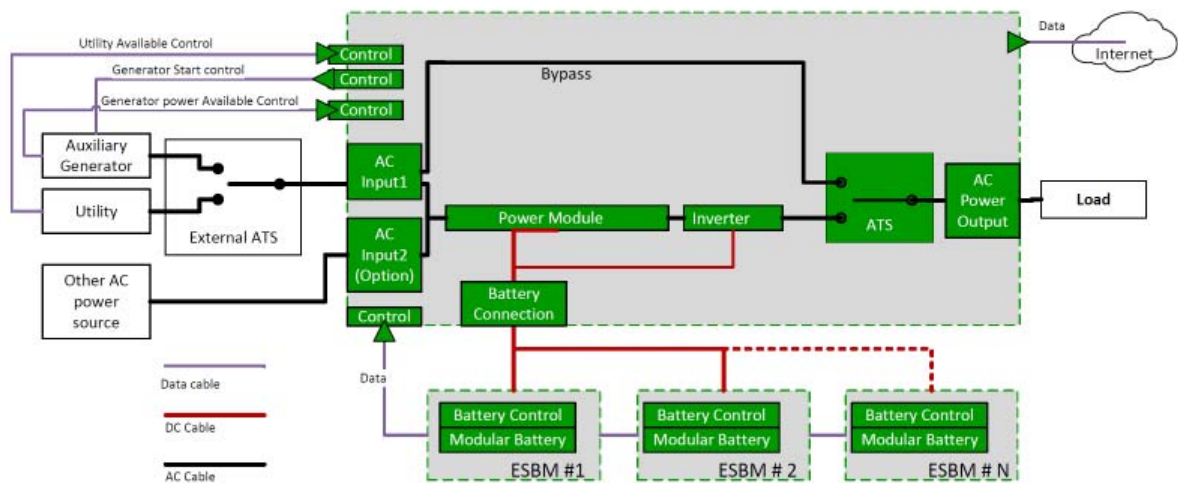
The OL3MC™ automatically shuts down the generator when the load is decreased below the preset maximum load or when the battery capacity is restored.

100% isolated from the grid:

The OL3MC 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.

The OL3MC 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.

System Topology



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 OL3MC 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 OL3MC™ UPS includes DSP technology allowing to correct the input power factor in a manner to substantially save on both the utility and generator bill.

Seamless, easy operation:

The OL3MC™ is engineered to operate without any user intervention. There is no need to push any buttons or understand how it works. It simply does.

Touch Screen LCD:

For those who do want to know what is happening, when and why, the OL3MC™ UPS series include a touch screen LCD display with an intuitive menu displaying detailed data about the system.

Fool proof technology:

The OL3MC™ does not trip any breaker in the event of an overload:

If the overload occurs when the utility is present, the OL3MC™ will not raise any alarm until it senses that the overload is about to trip the main utility breaker or generator breaker. Only then will it raise an alarm and send an sms / email to a number of pre-

programmed coordinates in order to alert the user to decrease the power consumption to avoid running on batteries when the utility power is available.

If the overload occurs on the battery, the OL3MC™ will sound a short buzzer and send an sms. If ignored, the OL3MC™ will initiate the starting of the generator to avoid fast depletion of the batteries.

In the event where the generator is not operational, the OL3MC™ will disconnect the load for 1 minute to give the user the time to lower the power consumption. After 1 minute the OL3MC™ will reconnect the power automatically.

If for any reason the OL3MC™ is damaged or its battery fully depleted, it will automatically disconnect itself from the circuit and bypass itself. The load will continue to be powered by either the utility power or the generator until the OL3MC™ UPS is serviced.

Unmatched Features

Besides its unmatched performance and flexibility, the OL3MC™ offers a number of features:

N+X parallel redundancy

Up to 13 modules of OL3MC-M40KI can be positioned in parallel per frame and up to 4 frames can be connected in parallel redundancy mode to reach up to 2.06MW.

This means that if any power module fail, the system will continue to operate normally (after sounding an alarm) with the only consequence of a decrease in maximum power equal to the number of modules which failed. The likeliness of 2 modules failing at the same time being less than 1 in a million, the reliability of the overall system is the highest in the industry.

DSP Technology

The OL3MC™ 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 (up to 96% in online mode).

Intelligent Battery Management

The OL3MC™ 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.

Battery Discharge Time Prediction

The OL3MC™ UPS is capable of predicting the remaining time on battery under a current load level allowing you to make accurate decision making.

Flexible Battery Configuration

The OL3MC™ UPS is programmable to operate on a variable number of batteries. This means that in case one or more batteries are damaged, the OL3MC™ can be programmed to operate on less batteries until the damaged battery is replaced avoiding any downtime.

Hot-Swappable Power Modules

In the event of a power module being damaged, it is possible to replace the damaged module with a new one without shutting down the inverter and without any load interruption.

Strong Overload Capability

The OL3MC™ 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 (Optional)

The OL3MC™ Series can be ordered with dry contacts to prevent the UPS of charging when the generator is operational.



Emergency Power Off (EPO)

The OL3MC™ 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 (option), SNMP adaptor (Option), Dry Contacts.

Low input current total harmonic distortion (THDi)

The OL3MC™ 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.

Truly Modular and Evolutive

The OL3MC™ UPS Series is built into compact cabinets allowing to increase power capacity or reliability at will.

Each OL3MC cabinet includes by default one of each of the following circuits:

- Input/Output
- Static Bypass
- High power Rectifier / Charger
- High Power Inverter
- Communication Port

Up to 6 power modules can be connected in N+X parallel redundant mode in order to configure the OL3MC to the required capacity or level of reliability:

If for example a system is configured with 3 power modules of 400KVA each, the maximum power of the Inverter will be $3 \times 400\text{KVA} = 1200\text{KVA}$.

If the load is constantly under 800KVA, and one module fails, the Inverter will sound an alarm and the load will be automatically transferred to the 2 remaining power modules without any load interruption.

Upgrade as you Grow

The OL3MC™ can be upgraded by adding modules. You may start with a OL3MC™ UPS equipped with only one module and decide later that you wish to upgrade.

Simply add one power module, and the required number of battery modules (check with your dealer for the number required to reach the runtime desired) and you're all set.

Easy to Service

The advantage of a modular system is that it allows to replace one module in case of a damaged part.

The OL3MC™ allows to detect easily which Cabinet is faulty. It is easy to swap the faulty cabinet with a new one. Simply remove the faulty cabinet and replace in the new cabinet and the system is operational again.

Customers who own multiple OL3MC™ units may keep one module as a common spare part for all systems allowing to minimize downtime.

Module Technical Specifications

Mode #	OL3MC-300KI, OL3MC-400KI, OL3MC-500KI	
Capacity (KVA)		300, 400, 500
General	Efficiency(%)	up to 95.3 %
	Maximum Parallel Units	6
	Transfer time (ms)	0
Input		
	Rated input voltage (Vac)	3PH+N+PE 220/230/240
	Operation voltage range (Vac)	176~276 (PH-N)
	Operating frequency range (Hz)	40-70
	Power factor	≥0.99
	Current harmonic distortion	<3% (100% Linear load), <5% (50% Nonlinear load)
	Back feed protection	Supported
	Generator in	Supported
	Power Walk in	Supported
Bypass		
	Rated (Vac)	3PH+N+PE 220/230/240
	Operating voltage range	Lower limit:-40%, upper limit:+20% (can be set via PC)
	Synchronous tracking range (Hz)	Highest3Hz (can be set via pic)
	Bypass operation range (Hz)	Highest±20% (can be set via pic)
Output	Back feed protection	supported
	Rated (Vac)	3PH+N+PE 220/230/240
	Frequency (Hz)	50/60Hz
	Power factor	1 (leading and lagging load)
	Voltage harmonic distortion	<2% (100% Linear load, <3% (100% Nonlinear load)
	Voltage regulation	<1%
Battery	Overload	load ≤110%, 60 min, ≤125%, 10 min, ≤150%, 200 min,
	Battery voltage (Vdc)	±192; ±204; ±216; ±228; ±240 (32/34/36/38/40)
	Maximum charging power (KW)	60
Environment	Maximum charging current (A)	100
	Operating temperature (°C)	0-40
	Storage temperature (°C)	-20~70(no battery)
	Humidity range	0~95%(no condensation)
	Altitude	<1500m, exceed 1500m derating use per GB/T 3859.2 regulations
	Noise level (dB) (1meter)	<70
Function	Indice of Protection	IP20
	Alarm function	Overload, Over temperature, Grid abnormal, UPS failure, battery low-voltage fan failure, etc.
	Protective function	Short circuit, overload, main feedback protection, bypass feedback protection
	Communication function	CAN, RS232, Modbus card, SNMP card, dry contact card
Mechanical Property	Emergency power off	YES (local and remote)
	Dimension (WxDxH)	1300x850x2000
	Weight (kg)	1220
	Operative norm	YD/T 1095-2008

SH-UPS™



OL3M-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



Ordering Information

Ref Number	Description
OL3MC-300KI	On-Line UPS, DSP Modular Centralised Type, 300KVA, +/-16/17/18/19/20B, 3ph. Input, 3 ph. Output, 380 V, 50 Hz (without batteries)
OL3MC-400KI	On-Line UPS, DSP Modular Centralised Type, 400KVA, +/-16/17/18/19/20B, 3ph. Input, 3 ph. Output, 380 V, 50 Hz (without batteries)
OL3MC-500KI	On-Line UPS, DSP Modular Centralised Type, 500KVA, +/-16/17/18/19/20B, 3ph. Input, 3 ph. Output, 380 V, 50 Hz (without batteries)



REGIONAL SALES OFFICES

North America:

1250, Rene Levesque West, #2200
Montreal, Quebec,
Canada H3B 4W8
Phone: +1-514-9893700
Sales_R1@e24solutions.com

Eurasia:

5th and 6th Floors,
14 Tsar Osvoboditel Blvd.,
1000 Sofia, Bulgaria
Phone: +359-2-811-1445
Sales_R5@e24solutions.com

Europe:

20-22 Wenlock Road
London N1 7GU
United Kingdom
Phone: +44-2038242497
Sales_R4@e24solutions.com

Middle East & Africa:

May Tabet Building,
Sin El Fil
Beirut, Lebanon
Phone: +961-1-492705
Sales_R6@e24solutions.com

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