

M4630R Rugged AC to AC UPS

- ▶ Rugged Uninterruptible Power Supply
- ▶ Wide Input AC Voltage Range
- ▶ Up to 2.5KW Continuous Output
- ▶ Clean Pure Sine Wave Output
- ▶ Shock and Vibration Tolerant
- ▶ Wide Operating Temperature Range
- ▶ Designed For Hostile Environments
- ▶ Advanced Battery Technology



Westeks M4630R Rugged UPS provides a clean and stable ~230V AC power output from a wide ranging AC mains input voltage and seamlessly sustains the AC power even when the AC mains power has failed.

The M series Rugged UPS family is designed for use in high or low temperature environments, which may be subject to shock and vibration. As a recommended option the M4630R may be supplied mounted in a protective rack transport case to provide full IP65 protection when not in use and additional resistance to shock during transportation. It may be deployed and used in the rack case with front and rear lids removed.

Westeks range of M series Rugged UPS are ideal for use in hostile environments on land and sea. The M4630R is designed to meet Military requirements for EMC and EMI

The Rugged UPS Features :

- ▶ Auto-ranging AC Input 90—264V AC
- ▶ Configurable AC Output 220/230/240V AC 50/60Hz
- ▶ Rear Rugged MIL Power Connectors
- ▶ Sealed Rugged Long Life Battery Pack
- ▶ Rugged 4U Rack Mountable Chassis
- ▶ High Efficiency Inverter
- ▶ Operating Temperature Range -20°C to +55°C
- ▶ Resettable and Testable RCD AC Output Breaker
- ▶ Resettable Overload protection



Fitted in Optional Rugged Shock Mounted IP65 Transport Rack Cases

The M4630R features double conversion technology such that there is seamless power available with absolutely no interruption on input power fail. Heavy duty MIL D38999 AC input and output connectors provide power for external devices along with a control port to enable automatic safe shutdown of attached server equipment in the event of a sustained mains power failure. Temperature controlled cooling fans keep the unit running reliably in high temperature environments and the rugged chassis protects batteries and control electronics from excessive shock and vibration.

Front panel access resettable output overload and earth leakage circuit breaker protects the unit from overload conditions and the batteries are automatically disconnected to prevent damage in the event of over discharge. EMI filtering on the AC mains input and output provides very low level conducted emissions and the innovative case design ensures very low radiated EMC.

Battery Technology

Technology	Spirally wound, sealed, valve regulated, Lead Acid batteries and can be transported by land/sea/air as non-hazardous cargo. Batteries meet UL924 and UL1778. Gasses produced in normal overcharge are recombined within the cell. A re-sealable busen valve is incorporated to permit gas venting in the event of a fault condition such as abusive overcharging.
Cells	12x 2V 25Ah Cells
Installation	Any orientation
Cycle Life	700x at 60% Depth of Discharge 5000x at 10% Depth of Discharge
Float Life	15 years @ 20°C (ie on constant float charge)
Regime	Constant float voltage high current recharging with automatic initial re-charge soft start when AC returns to limit load when recharging a discharged battery.

Battery Storage Life

Most batteries will lose their charge if not charged at all. These advanced batteries have very low self discharge rates and storage life is dependent on temperature. At 20°C the storage time is approximately 32 months. At 30°C this has reduced to about 14 months and at 40°C it is approximately 6 months or 3 months at 50°C. The system should be powered up to charge the batteries at a frequency in line with their expected storage temperature for a minimum of 12 hours.

UPS Run Time

From fully charged state at 20°C, approximate battery backup operating time in minutes is shown in the table below using the internal batteries only. Typical recharge time from a discharged state is approximately 3 hours.

M4630R Load (Watts)	2500W	2000W	1500W	1000W	500W	250W
Approximate Run Time Minutes	8 min	12 min	16 min	24 min	48 min	85 min

A battery expansion port is provided on the rear of the unit to add additional battery capacity to increase the above run times and adds an extra 2U shelf unit to the system as an option.

If the UPS has been allowed to deeply discharge it should be allowed to recharge for at least 10 minutes before connecting a load to the AC output.

System Status

The system has safety features to protect from fault conditions and offers remote monitoring via a serial port (or USB with converter) connection and remote on/off feature. An Ethernet port provides remote information on battery voltage level, AC power fail, temperature and low battery alert.

System status is also indicated on the front panel:

- Battery Charge Status LED Bar Display
- Output Load LED Bar Display
- Low Battery LED Indicator
- Inverter On Indicator



Practical Features

- ▶ Field Replaceable Sealed Leak Proof Battery Packs, Air Filter and Cooling Module
- ▶ Non Hazardous, Safe to Transport by Air Sea or Land
- ▶ Cleanable Sand Grain Specification Air Filters
- ▶ Output Overload and Earth Leakage Protection with Resettable Breaker
- ▶ Indicators for AC Power, Output Power Level and Battery Charge Status

Alerting is provided on low battery voltage level, high temperature and mains input failure. A simple utility program for Windows operating systems is provided to allow auto shutdown of servers powered by the UPS to be automated in the event of mains failure using a serial port connection. A monitor utility program is available to remotely monitor the UPS status using a serial or USB port connection to a suitable computer. An Ethernet port also provides remote AC fail, battery voltage, temperature and low battery alarms. A rear access battery expansion port is also provided to add additional run-time capacity if required.

Power Characteristics

Input Voltage Range	90-264VAC	Output Power Reduced Below 180VAC
Output Voltage	220/230/240VAC	230VAC Default - Configurable
Frequency	50/60Hz	50Hz Default - Configurable
Pure Sinewave	<3%THD	@2500W Linear Load
Output Power	2.5KW, 3.8KW Peak	-20°C to +50°C VAC in >180VAC
At Elevated Temperature	2.2KW	@55°C and >180VAC in
At Reduced Input Voltage	2.2KW	115VAC Input
At Low Input Voltage	1.5KW	90VAC Input
Efficiency	91%	@2100W Linear Load

Environment

Operating

Temperature: -20°C to +55°C
Humidity: 10 to 95% Non-Condensing
Vibration: up to ~1G 10Hz to 500Hz
Shock: 20G / 11mSec
Altitude: -300 to +3000 metres
IP51 Dust and Water Drip Protection

Non-Operating

Storage Temperature: -40°C to +70°C
Humidity: 10 to 95% Non-Condensing
Vibration : up to ~2G 10Hz to 500Hz
Shock : 40G / 11mSec
Altitude: -300 to +10000 metres
IP65 Sealed in Optional Rugged Transport Rack Case

Physical

Dimensions: 431(W) x 176(H) x 600(D) mm (excluding front drip cowls and rear connectors.)
Tough Aluminium and Aluzinc Steel Main Chassis and Stainless Steel Fixings
Additional Anti Corrosion Paint Finish (Options For Black, Dark Green, Admiralty Grey or Custom)
Weight (Net): approximately 46Kg (to be confirmed)
Input AC Voltage 90V to 264V AC 47-63Hz, up to 4KW input at full output load.
CE Compliant Designed to meet MIL STD 801G environmental specifications and MIL STD 461 EMI
ROHS and REACH Compliant.

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