

M4524R Rugged AC to DC UPS

- ▶ Rugged Uninterruptible Power Supply
- ▶ Wide Input AC Voltage Range
- ▶ IP53 4U Rack Mount or Free Standing
- ▶ Clean 28V DC Output up to 90 Amps
- ▶ Shock and Vibration Tolerant
- ▶ Wide Operating Temperature Range
- ▶ Designed For Hostile Environments
- ▶ Remote Monitoring Over Ethernet



Westeks M4524R Rugged UPS provides a clean and stable ~24/28V DC power supply from an AC mains input voltages and seamlessly sustains the DC 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 M4524R 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 is ideal for use in hostile environments including military COTS use. The M4524R is designed to meet Military requirements for EMC and EMI to DEF STAN 59-411 and MIL-STD 461.

The Rugged UPS Features :

- ▶ AC input 170 to 265V AC (110V version available)
- ▶ 24V DC output at up to 40 or 90 Amps
- ▶ 25Amp Hour Battery Capacity
- ▶ Rear Rugged MIL Power Connectors
- ▶ Sealed Rugged Long Life Battery Pack
- ▶ Rugged 4U Rack Mountable Chassis
- ▶ IP53 Splash Proof Design
- ▶ Operating Temperature Range from -20 to +55C
- ▶ System Monitoring and Remote Alerting




M4524R Mounted in Optional Rugged Shock Mounted IP65 Transport Rack Cases

A heavy duty MIL-SPEC DC output connector provides 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.

An externally accessible input fuse (with spare fuse) and resettable output overload 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 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.	 <p>Replaceable H/D Battery Pack</p>
Cells	24 x 2V 25A/H 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 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 Deg C the storage time is approximately 32 months. At 30 Deg C this has reduced to about 14 months and at 40 Deg C it is approximately 6 months or 3 months at 50 Deg 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 Deg C, approximate battery backup operating time in minutes is shown in the table below. Typical recharge time from a discharged state is approximately 4 hours.

Model 25A/H 24V	Load Current	72A	54A	32A	18A	12A
M4524R 2000VA max	Run Time Minutes	10 min	15 min	30 min	60 min	90 min

The system has safety features to protect from fault conditions and offers full remote monitoring and alerting for advanced applications.

A Battery status LED on the front panel indicates the battery condition and an audible and visual alarm is generated on AC mains failure and again prior to battery empty state.

GREEN = Battery fully charged, or AC mains is on/battery charging/ DC output is switched off at breaker/ no load condition.

AMBER = Battery powered state, partial discharge / DC output on and under light load normal UPS operation in battery mode or batter in initial recharge.

RED = Battery powered state, battery more than ~50% discharged, or heavy load



- ▶ Field Replaceable Sealed Leak Proof Battery Pack, Air Filter and Cooling Module
- ▶ Non hazardous, safe to transport by air sea or land
- ▶ Cleanable Sand Grain Specification Air Filters
- ▶ Output Overload Protection with Resettable Circuit Breaker Fuse
- ▶ Indicators for AC Power, Output Voltage Level/Battery Status, Output Status and Over Temperature
- ▶ Audible Alarm (defeat-able)

The M4524R series features comprehensive Remote Monitoring and Alerting capabilities via an Ethernet connection using Westek's Integrated M2 Guardian Alarm Card. As standard this provides alerting on battery voltage level, fan speeds, battery temperature and ambient temperature and mains input failure. A user friendly remote GUI is accessible over Ethernet, and a simple register based API is also available for integration into server applications. The generation of SNMP alerts over Ethernet on alarm conditions may also be configured. A 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.

Models Available

Model #	Input Voltage	Nominal O/P V	Min OP/V	Max O/P V	VA Capacity	Maximum A
M4524R	170-265V AC	24VDC	20V DC	29V DC	25A/H	90A
M4324R	170-265V AC	24VDC	20V DC	29V DC	25A/H	40A

Environment

The UPS is designed to meet the following:

Operating

Temperature: -20 to +55 Deg C
 Humidity: 10 to 95% Non-Condensing
 Vibration: up to ~1G 5Hz to 500Hz
 Shock: 20G / 11mSec
 Altitude: -300 to +3000 metres
 IP53 Dust and Water Drip Protection

Non-Operating

Storage: -40 to +70 Deg C
 Vibration : up to ~2G 5Hz to 500Hz
 Shock : 40G / 11mSec
 Altitude: -300 to +10000 metres
 IP65 Sealed in Optional Rugged Rack Case



Rear view showing rear vent cowling, circuit breaker, input fuse and spare fuse, and DC power output connector

Physical

Dimensions: 431(W) x 176(H) x 600(D) mm
 Weight (Net): approximately 50Kg*
 170V to 265V AC 47-63Hz
 Maximum inrush current 20A.

CE Compliant
 Designed to meet UL and FCC requirements

* excluding rack mount slider rails option

CE EMC:

Input EMI:

Harmonic Distortion:

Immunity:

Safety:

Radiated Emissions Class B

Less Than EN55022 Curve B

EN6100-3-2

Fast Transients +/- 2KV EN6100-4-4 L3

Surges Line-Line +/- 1KV EN6100-4-5 L2

Surges Line-Ground +/- 2KV EN6100-4-5 L3

EN60950

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Specifications subject to change without notice.

