

M2000R Series Rugged AC to DC UPS

- ▶ Rugged Uninterruptable Power Supply
- ▶ Wide Input AC Voltage Range
- ▶ 2U Rack Mount or Free Standing
- ▶ Clean DC Output up to 80 Amps
- ▶ Shock and Vibration Tolerant
- ▶ Wide Operating Temperature Range
- ▶ Designed For Hostile Environments



Westek's M2000 series Rugged UPS systems are designed for use in high and low temperature environments that are subject to shock and vibration. These UPS system are ideal for use in hostile environments including military COTS along with Westek's family of Rugged Servers where a 28V DC power supply input option is specified or other similar equipment needing an uninterruptable 28V DC power supply.

The UPS is designed to comply with the relevant parts of MIL-STD-810 and DEF-STAN 00-35 for use in aircraft, mobile or fixed land based systems, transportation and naval environments below decks as well as general use where a ruggedized UPS system is required.

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.



Removable battery tray and cooling module

The Rugged UPS Features:

- Auto-ranging input 100V to 265V AC
- 28V DC output at up to 80 Amps
- 8 or 16 Amp hours capacity
- Rear rugged MIL power connectors
- Sealed rugged long life battery pack
- Compact 2U rugged case
- IP53 splash proof design
- Operating temperature range from -20°C to +55°C
- AC fail and lower battery alarms
- Low EMC and EMI profile

An externally accessible input 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.

See the product matrix on the following page to decide which model is best for you, or contact Westek to discuss your requirements.

Battery Technology

Technology	Advanced technology spirally wound, sealed, valve regulated Lead Acid batteries. May 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 Bunsen valve is incorporated to permit gas venting in the event of a fault condition such as abusive overcharging.
Cells	(24V) 12 (8 Amp Hours) or 24 (16 Amp Hours) 2V Cells (48V) 24 (8 Amp Hours) 2V Cells
Installation	Any orientation
Cycle Life	700x at 60% Depth of Discharge 5000x at 10% Depth of Discharge
Float Life	15 years @ 20°C (i.e. on constant float charge)
Charge Regime	Constant voltage high current recharging

Storage Life is dependent on temperature. Most batteries will lose their charge if not charged at all. These advanced batteries have very low self discharge rates. 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.

UPS Run Time

From fully charged state, approximate battery backup operating time in minutes is shown in the table below:

Model	Battery Rating	Load 250VA	Load 500VA	Load 750VA	Load 1000VA	Load 1500VA	Load 2000VA
M2124R	24V 8AH	35	20	12	8	-	-
M2224R	24V 16AH	70	40	24	15	-	-
M2424R	24V 16AH	70	40	24	15	10	-
M2424R with AC in >180V	24V 16AH	70	40	24	15	10	5

- ▶ Rugged steel 2U 19" rack mount or free standing case
- ▶ Field replaceable sealed leak proof battery pack and cooling module
- ▶ Cleanable sand grain specification air filters
- ▶ Output overload protection with resettable circuit breaker fuse
- ▶ Long shelf life batteries
- ▶ Indicators for output voltage level/battery status and over temperature fault condition
- ▶ Audible alarm (defeat-able) and indicators for AC power fail, low battery level and output overload

The M2000 family also provides an external AC power fail signal via a rear serial port, and a utility program for Windows operating systems is provided to allow shutdown of computers powered by the UPS to be automated in the event of mains failure.

Models Available

Model #	max VA	Input Voltage	Nominal O/P V	Max /Min OP/V	A/H Capacity	Maximum A
M2124R	1000VA	100-264V AC	28VDC	29V/21V DC	8AH	40A
M2224R	1000VA	100-264V AC	28VDC	29V/21V DC	16AH	40A
M2424R	1500VA	100-264V AC	28VDC	29V/21V DC	16AH	60A
M2424R	2000VA	180-264V AC	28VDC	29V/21V DC	16AH	80A

Environment

The UPS is designed to meet the following:

Operating

Temperature: MIL STD 810G -20°C to +55°C
 Humidity: 10 to 95% Non-Condensing
 Vibration: up to ~2G 5Hz to 500Hz
 Shock: 20G / 11mSec
 Altitude: -300 to +3000 metres



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

Non-Operating

Storage: MIL STD 810G -40°C to +70°C
 Vibration : up to ~4G 5Hz to 500Hz
 Shock : 40G / 11mSec
 Altitude: -300 to +10000 metres

Physical

Dimensions: 431(W) x 88(H) x 600(D) mm
 Weight (Net): approximately 27kg (M2224R/M2424R) , 22kg (M2124R)
 CE Compliance: CE Marked, Meets EEC EMC and Safety
 Designed to meet UL and FCC requirements
 Optional MIL EMI Filter to comply with MIL STD 461 EMI on AC input

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Specifications subject to change without notice.

