



## Uninterruptible Power Supply 1RCQ10KA



The 1RCQ10KA Uninterruptible Power Supply (UPS) supplies a battery supported, 115V, 60Hz single phase output to ships loads. The UPS consists of a rectifier and an inverter. A separate battery cabinet is required to house the associated battery.

The rectifier in the UPS is supplied by the ship's 440V 3phase 60Hz supply and provides power to supply the inverter and recharge the battery.

In normal operation, the rectifier float charges the battery and supplies the DC input to the inverter. The inverter supplies the output. When the input supply fails the battery supplies the DC input to the inverter that continues to supply the output. When the mains returns the rectifier recharges the battery.

The internal DC rail voltage has a nominal voltage of 432V.

As required for naval applications the UPS is designed to meet the necessary ruggedness in terms of shock, vibration and EMC requirements.

The unit is designed for front operation and maintenance and has an ingress protection rating of IP54.

## ELECTRICAL CHARACTERISTICS

### Input

Normal and alternate supply: 440 volts 3 phase 3 wire 60Hz in accordance with STANAG 1008 Edition 8

Input Rated Voltage	440V
Input Rated Current	18A/phase
Inrush Current	<I <sub>nom</sub>
Frequency	60Hz ± 10%

Option: Anti condensation heater: 115V or 230V

### Battery

Separate Battery Cabinet required.  
Valve Regulated Sealed Lead Acid type,  
36off 12V batteries connected in series.  
Nominal voltage 432V.

### Output

115V 1 phase, 60Hz, 10kVA (power factor range 0.4-1).

Waveform	Sinusoidal
THD	<2% linear load <5% non-linear load
Static voltage regulation	± 1%
Dynamic voltage regulation	± 5% (100% load change)
Frequency stability	± 0.1%.

**Wild heat** 2.5kW (worst case; full load + battery recharge)

**Efficiency** 90%

### Protection

Input circuit breaker. Output short circuit and over current protection. Over voltage and over temperature trips are also provided to afford general protection to the unit. Battery cut off at the end of discharge, battery overvoltage protection.

### Local Controls and Indications.

Supply ON/OFF selector switch, Supply available LED, Rectifier LED Battery LED, Inverter LED, Liquid Crystal Display with scroll pushbuttons to view parameters

### Remote Indications.

RS232 interface gives status/fault information plus the parameter values of supply voltage, supply current, Output Voltage, Output Current, Battery Voltage, Battery charge/discharge current, Temperature, Battery Capacity

## MECHANICAL FEATURES

### Enclosure

Fabricated mild steel folded and welded for strength. Deck mounted with top steadies. Lifting eyes are provided.

### Dimensions

(O/A)(h) x (w) x (d) 1450 x 864 x 695 mm

A clearance of at least 100 mm should be allowed around the unit (including base) to allow proper ventilation.

Fixings (mm) 4 holes 13.0mm dia. Centres 790 (w) x 500 (d) mm  
2 holes 13.0mm dia. Centres 800(w) x 1420(h) mm

**Weight** 375kg

### Cable Entry

Top via gland plate. Aperture 420 x 700 mm  
User connections are made to internal rail mounted and stud terminals. Access for the cables is by a gland plate that can be drilled or punched as required for glands.

### Ingress Protection Rating

IP54

### Cooling

Cooling fans are positioned on the front of the equipment. Cool air is drawn in at the bottom and warm air exits at the top.  
Cooling fans for the power assembly are also provided. Unrestricted airflow should be allowed around the unit.

### Maintenance

Front maintenance – Lift off hinged door for access.

### Internal wiring

Low fire hazard cross linked polyolefin RADOX 125.

### Earth

For safety the chassis of the UPS must be earthed. An external M10 earth stud is situated adjacent to the gland plate.

### Fire Extinguishing

CO2 injection socket

## ENVIRONMENTAL CHARACTERISTICS

### Shock

Designed to meet a shock requirement of a maximum vertical acceleration (half sine-wave pulse) of amplitude 117.7m/s<sup>2</sup> (12g) and of duration 9ms (rise time to peak velocity) and 24ms (fall time to zero velocity). For installed shock levels in excess of this shock mounts should be fitted.

### Vibration

The unit, when 'hard' mounted, is designed to meet shipboard vibration. Typically: 5 to 33Hz +/- 0.125mm

### Noise

< 60dbA. @ 1m

### Electromagnetic Compatibility.

The equipment is designed to comply with the requirements of Def Stan 59-41. Emissions and susceptibility (Below deck limits)

### Ambient Temperature.

0°C to + 45°C.

### Relative Humidity

10% to 95% non-condensing.

All PCBs have a conformal coating to protect against the effects of humidity.

### Ships Motion

The equipment is designed to withstand, without damage or degradation of performance or spillage of fluids, ship motion due to the action of the sea and weather as well as accelerations and velocities deriving from deliberate ship manoeuvres. Typically:

Roll angles	± 30°
Pitch angles	± 10°
Steady list angles	± 15°
Steady trim angles	± 5°

