

## Valve Regulated Lead Acid Battery Box BB350A



The Battery Box BB350A is one in the range of Gresham Power Electronics' battery boxes. It affords a secure means of housing batteries which are used for backing up the ship's main and other supplies.

A control and monitoring enclosure is bolted to the top of the battery box and the connections between the control enclosure and the main battery enclosure are gas tight.

The maintenance free batteries selected are built in accordance with BS 6290 Part 4 (1997) and have a 7 to 10 year design service life at 20°C. They are high integrity Valve Regulated Lead Acid cells. Nominally 24 volt, continuous float and recharge should be in the range 27.0V to 27.6V. A low ripple charger (such as in the Gresham 3RC range) should be employed in order to maintain battery life. The battery endpoint is 21V. The nominal battery rating is 350Ah at 20°C.

The battery box is a custom built steel enclosure 1175mm x 850mm x 454.5mm overall dimensions that is designed to be mounted on shock mounts with top steadies. Protection level is to IP23.

Access for maintenance and repair is from the front via a removable front panel.

The top mounted control and monitoring enclosure contains front mounting panel meters, indicating lamps and the double pole ON/OFF switch S1.

Louvres pressed outwards on the front panel allow cooling by natural convection.

Electrical connections to and from the Battery Box are made on M8 (x1.25) studs for the main connections and to a terminal block for remote sense indications. The studs and terminal block are situated in the main battery enclosure. Access to the studs and terminal block is gained via a gland plate which is situated on top of the main enclosure behind the control and monitoring enclosure.

An M10 external earth stud is provided on the top of the enclosure adjacent to the gland plate.

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## ELECTRICAL CHARACTERISTICS

### Batteries

Valve Regulated Lead Acid  
Nominal voltage: 24V  
Nominal capacity 350Ah  
12 batteries (6 parallel strings of 2)  
Capacity (20hr rate) 390Ah  
End of discharge cut off: 20V  
Specified lifetime 7-10yrs at 20°C.  
Recommended normal operating temperature range 20 to 25degC.

### Output

Nominal output voltage 24VDC  
Battery charging float voltage 27.4VDC (Temperature Compensated)  
Nominal output current 166A  
Fitted with 250A circuit breaker

### Local Controls and Indications

Battery Circuit breaker  
Panel mounted voltmeter  
Panel mounted ammeter  
Charge LED  
Float LED  
Discharge LED  
Low Battery LED  
Alarm LED  
Overvolt LED  
H2 Level LED  
Balance LED

### Remote Indications

2 sets of NO/C/NC Changeover contacts for:  
Discharge  
Float  
Charge  
Low battery  
Alarm

### Battery monitoring

The battery monitoring includes overvoltage, low voltage, excess hydrogen and cell voltage imbalance.

### Temperature compensation/remote sense

The battery boxes have the facility for a remote sense connection that can be used for float voltage temperature compensation.

## MECHANICAL FEATURES

### Enclosure

Fabricated mild steel folded and welded for strength. Deck mounted, top steadies. Lifting eyes.

### Dimensions

(O/A)(hxwxh) mm 1175 x 850 x 454.5

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

Fixings (mm) 4 holes 13.0mm dia. Centres 800(w) x 325(d) mm  
2 holes 13.0mm dia. Centres 780(w) x 990(h) mm

Weight 449kg

### Cable Entry

Top via gland plate. Aperture 480mm x 70mm

### Ingress Protection Rating

IP23

### Cooling

Naturally cooled via louvers.

### Maintenance

Front maintenance – Lift off front cover.

### Internal wiring

Low fire hazard cross linked polyolefin RADOX 125.

### Earthing

M10 external earth stud.

## ENVIRONMENTAL CHARACTERISTICS

### Shock

Designed to meet the "minimum ruggedness" requirement of DGS 349, 30g in each of the three orthogonal directions when solidly mounted. For installed shock levels in excess of this shock mounts should be fitted.

### Vibration.

Designed to meet the vibration requirements of DGS 350. (5 to 33Hz +/- 0.125mm)

### Noise

<55dbA.

### Electromagnetic Compatibility.

Designed to meet the requirements of Def Stan 59-41

### Ambient Temperature.

0°C to + 45°C.

Batteries are temperature dependent. The batteries have been selected for operation at a nominal ambient temperature of 20°C. Higher temperatures will adversely affect battery life and lower temperatures will adversely affect battery performance.

### Relative Humidity

10% to 95% non-condensing.

### 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°



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