

Valve Regulated Lead Acid Battery Box BB150A



The Battery Box BB150A 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 with case material that is flame retardant (rated V0 (UL94) oxygen index 30).

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 nominal battery rating is 150Ah at 20°C.

The battery box is a custom built steel enclosure 985mm x 690mm x 441mm overall dimensions that is designed to be mounted on X-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 a double pole ON/OFF circuit breaker.

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 and 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.

ELECTRICAL CHARACTERISTICS

Batteries

Valve Regulated Lead Acid
Nominal voltage: 24V
Nominal capacity 150Ah
14 batteries (7 parallel strings of 2)
Capacity (20hr rate) 168Ah
To avoid over-discharging the battery the battery boxes have an end of discharge cut off set at 20V.

Specified lifetime 7-10yrs at 20°C.
The recommended normal operating temperature range is 20 to 25°C.
High temperature will reduce the battery service life, typically to 80% at 30°C, dropping dramatically to 20% at 45°C

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)(hxwx d) 985 x 690 x 441mm

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

Fixings 4 holes 13.0mm dia. Centres (w x d) 640 x 290 mm
2 holes 13.0mm dia. Centres (w x h) 630 x 800 mm

Weight 232kg

Cable Entry

Top via gland plate. Aperture 495mm x 65mm

Ingress Protection Rating

IP23

Cooling

Naturally cooled via louvers. Fan assisted by two speed fans.

Maintenance

Front maintenance – Lift off front panel for access.

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

< 50dbA.

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 20C. 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.

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



Internal view (battery not fitted)