

Switch Tripping/Closing Battery Chargers



- ◆ Constant voltage charging for reduced maintenance
- ◆ Digital metering of battery voltage and battery charge/discharge current
- ◆ Modular alarm system with visual and audible indication
- ◆ BMS facility via volt free changeover contacts
- ◆ Nationwide inspection, commissioning and maintenance service



Standard Range and to National Grid/Supply Authority Specification — Network Rail Approved

Designed and manufactured in compliance with the relevant British & International standards, PB Design offer a full range of wall mounting and floor standing self contained units suitable for switch tripping, switch closing and motor rewinding. The standard range covers voltages from 24V to 110V DC output and utilises our 1500 and 3500 range of constant voltage chargers and Series 95,135 or 210 system monitor.

PB Design Uninterruptable DC supplies have long been approved for use in National Grid, Distribution Network Operators (DNO's), Water Authorities, Network Rail infrastructure and London Underground applications along with many other high specification projects.

- ◆ Constant-voltage battery chargers provide low maintenance and high reliability
- ◆ Alarm system includes Scada interfaces for easy control integration
- ◆ Choice of vented or sealed lead-acid and vented nickel-cadmium batteries to cover all applications
- ◆ Designed and manufactured in Clevedon to UK and international supply authority standards

The integrated units are supplied in rugged mild or stainless steel cubicles or 19" racks, with standard ingress protection to IP31. Smaller wall mounted units are available where substation or plant room space is at a premium. The advanced control system incorporates digital metering of various battery parameters and a monitoring system that combines

visual and audible indication with a selection of SCADA interfaces for external battery monitoring.

PB Design has installed and commissioned its DC switch tripping/closing systems in electrical substations around the UK and worldwide for the past 40 years, in environments ranging from equatorial deserts to arctic tundra. The systems have justifiably earned a reputation for the highest reliability, availability and performance levels, even in the most hostile of environments.

Options available:

- ◆ Choice of enclosures and paint colours
- ◆ Integrated or external DC distribution
- ◆ Choice of system alarm monitoring from entry level to advanced features
- ◆ Battery string monitoring
- ◆ Dual charger capability for redundancy
- ◆ Additional 8 no. volt-free relay outputs for SCADA interface
- ◆ PADS approval for Network Rail

Input Voltage:

110—230 volts, 50/60Hz, single phase
400 volts, 50Hz, three phase (other voltages to special order)

Output Voltage:

Standard nominal system voltages of 24, 30, 48/50 or 110 V DC (other voltages to special order).

Charger:

Solid state constant voltage type with current limit and boost.
Inherently protected against low battery voltage, reversed battery connection and short circuit conditions.

Charger Output Regulation:

Float voltage controlled to within $\pm 1\%$ irrespective of AC mains supply variations of $\pm 6\%$ and charger output current variation from 0 to 100%.
AC rms ripple voltage can be limited to a minimum of 50mV or as std 2% of nominal V DC of the system DC nominal voltage.

Recharge Time:

Chargers rated to provide 95% recharge within 12 hours and full charge in under 24 hours following a full rated discharge. Refer to manufacturer if faster recharge times are required.

Instrumentation:

Single digital meter to indicate battery voltage and battery current selectable via pushbutton switch.
Each alarm condition is signalled by an internal audible device.

Indicators & Alarms:**Standard Functions (210 Series)**

- Text display
- Fault log
- Battery log
- System fault

Standard Functions (210/95 Series)

- Mains On
- Float
- Boost (if applicable)
- Charger Healthy
- Mains Supply Fail
- Charger Fail
- Low Volts
- High Volts (high volts shut down optional)
- Reset-Silence-Test

Standard Functions (135 Series)

- Float
- Boost
- Charger Healthy
- Reset-Silence-Test
- Charger Fail
- Low Volts
- High Volts

Optional Extras:

- Circuit Breaker Fault
- Earth Fault +/-
- Temperature compensation
- Temperature monitoring (210 only)
- String monitoring (210 only)

Remote Alarm Facility:

Single pole changeover volt free contact rated at 230v ac/24v dc

Fuses:

Comply with the general requirements of BS 88, IEC 60269 mainly being of the industrial H.R.C. type in withdrawable carriers.

Transformers:

Double wound, earth screened to BS EN 61558.

Cubicle Arrangement:

- Wall mounting
- Floor standing

Cable Access:

- Wall mounting – via pre-drilled conduit entry holes in side panel.
- Floor standing – via pre-drilled conduit entry holes in side panel (upper section). Top or bottom cable entry may be available if required (refer to manufacturer).

Cubicles:

Fabricated from minimum 1.6mm steel of folded construction to provide maximum strength and rigidity.
Channel sections 6mm thick are fitted to the base of floor standing cubicles in order to raise the cubicle off the floor preventing damage from moisture and corrosive material and in addition facilitating lifting by fork lift or pallet truck.

Ambient Temperature Range:

25°C nominal with derating for a higher ambient temperature. (Charging/alarm equipment only – Also refer to battery details).

Cubicle Ingress Protection:

IP31 standard. IP54 optional (charger only).

Additional Products:

| Distribution Panels | Auto Disconnectors | AC Emergency Lighting Central Battery Systems (Inverters) |
| DC Emergency Lighting Central Battery Systems | AC Uninterruptible Power Supply (UPS) Inverter
Systems | Constant Voltage Chargers |