



# BCT series : 25A - 40A Battery Chargers

Genset Controls - Timers/Monitors/Trips - **Battery Charging** - Spares & Accessories - Custom Products

The BCT series are Constant Potential and Current Limited solid state battery chargers utilising a phase controlled thyristor bridge. They provide maintenance free charging of Nicad & Lead-Acid (flooded cell) batteries, over a wide ambient temperature range. These chargers are normally supplied either as a Controller and separate Transformer or mounted into a wall / floor mounting enclosure (see: WBT series data sheet).

**OPERATION :** The electronic circuitry limits the charge current at all times and monitors the battery terminal voltage between the current pulses (when no current is flowing) thus minimising battery voltage sensing errors due to 'volt-drop' in the output cables.

As the battery is charged it's internal resistance rises, "tapering" the charge current accordingly, until the battery terminal voltage approaches the charger reference voltage, whereupon the battery is trickle charged to the "constant potential" float level.

**VOLTAGE THRESHOLD :** Unless specified otherwise, all units are pre-set at: 2.3V/Cell 'Float' and 2.5V/Cell 'Boost' for **Lead Acid** Batteries or 1.4V/Cell 'Float' and 1.5V/Cell 'Boost' for **NICAD** Batteries. The potentiometer is calibrated at centre scale to provide approx. +/- 5% adjustment for temperature compensation

**CHARGE INHIBIT :** This prevents the charger from operating into a short circuit. If the terminal voltage falls below half "FLOAT VOLTAGE" the charger will switch off, indicating a 'Fault' condition - - see 'Boost Mode'.

**BOOST MODE :** By linking the boost terminals, the float threshold is raised to a higher volts/cell level. Although this level is set at manufacture, the potentiometer described above will also trim this level, i.e. for lead acid the range is 2.5 to 2.7 volts/cell. This mode overrides the 'Charge Inhibit' feature - - - see above.

**LEAKAGE CURRENT :** 2mA

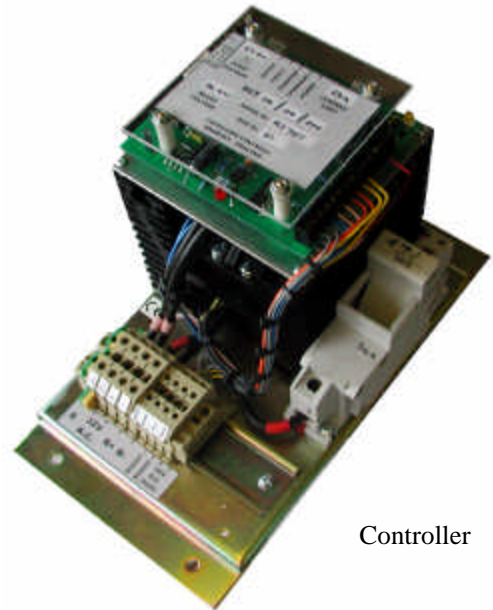
**CONSTRUCTION :** Mild steel (1.6 mm) chassis, zinc plated and gold passivated, carrying: - terminals, Fuse or circuit- breaker, black anodised aluminium heat-sink, encapsulated SCR / Rectifier Bridge, printed circuit board and clear Perspex cover. The charger should always be mounted so that natural airflow passes through the heat sink.

## LED INDICATORS :

|       |                 |   |  |
|-------|-----------------|---|--|
| Red   | <b>BOOST</b>    | = | Boost mode active --- float level raised to equalise the cells |
| Red   | <b>FAULT</b>    | = | Charging Fault --- fault relay de-energised                    |
| Green | <b>CHARGED</b>  | = | Battery voltage at or approaching 'Float' level                |
| Amber | <b>CHARGING</b> | = | Charge current > 500 mA  |
| Red   | <b>POWER</b>    | = | Battery Charger powered  |

|                            |   |  |
|----------------------------|---|--|
| 1/ Amber (steady)          | = | Bulk Charging  |
| 2/ Amber (steady) + Green  | = | Current tapering as the battery approaches the float level   |
| 3/ Amber (pulsing) + Green | = | Trickle charging to keep the battery at the float level (standing load << 500mA)<br>If the standing load is ≥ 500 mA the Amber Led will always be lit. |

|               |   |  |
|---------------|---|--|
| Red FAULT Led | = | Output open-circuit or Battery connections reversed or<br>Battery Voltage < ½ Float Level (overridden in 'Boost Mode') or<br>Thermal Overload (auto-resetting thermal trip on Controller heatsink) |
|---------------|---|--|



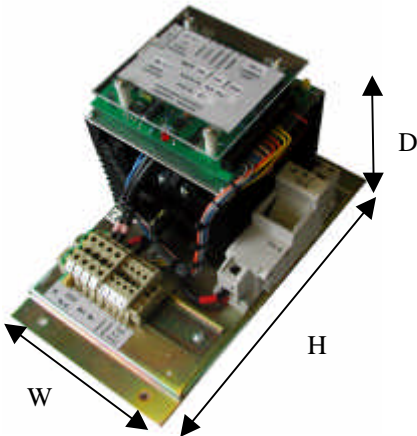
Controller

### CHARGER SELECTION

| <b>CONTROLLER</b>       |               |               |               |
|-------------------------|---------------|---------------|---------------|
| Nominal Battery Voltage | <b>12Vdc</b>  | <b>12Vdc</b>  | <b>24Vdc</b>  |
| Output Current Limit    | <b>30A dc</b> | <b>40A dc</b> | <b>25A dc</b> |
| Output Cables rating    | 60A Rms       | 80A Rms       | 50A Rms       |
| Output Protection       | 60A Fuse      | 80A Fuse      | 50A Fuse      |
| Protection Rating       | 60A           | 80A           | 50A           |
| <b>TRANSFORMER</b>      |               |               |               |
| Minimum Rating          | <b>1000VA</b> | <b>1300VA</b> | <b>1600VA</b> |
| Ex-Stock Transformers   | 1000VA        | (1600VA)      | 1600VA        |

| <b>CONTROLLER</b>       |               |               |               |
|-------------------------|---------------|---------------|---------------|
| Nominal Battery Voltage | <b>24Vdc</b>  | <b>24Vdc</b>  | <b>24Vdc</b>  |
| Output Current Limit    | <b>30A dc</b> | <b>35A dc</b> | <b>40A dc</b> |
| Output Cables rating    | 60A Rms       | 70A Rms       | 80A Rms       |
| Output Protection       | 60A Fuse      | 80A Fuse      | 80A Fuse      |
| Protection Rating       | 60A           | 70A           | 80A           |
| <b>TRANSFORMERS</b>     |               |               |               |
| Minimum Rating          | <b>2000VA</b> | <b>2200VA</b> | <b>2500VA</b> |
| Ex-Stock Transformers   | (2500VA)      | (2500VA)      | 2500VA        |

### CONTROLLER SPECIFICATION



| <b>DIMENSIONS</b> |                |
|-------------------|----------------|
| Width (W)         | 280 mm         |
| Height (H)        | 155 mm         |
| Depth (D)         | 170 mm         |
| Fixing Centres    | 255 x 105 x M6 |
| Net Weight        | 3.5 Kg         |

**TEMPERATURE RANGE :**  
 -10 deg C to +40 deg C (operating)  
 -20 deg C to +70 deg C (storage)

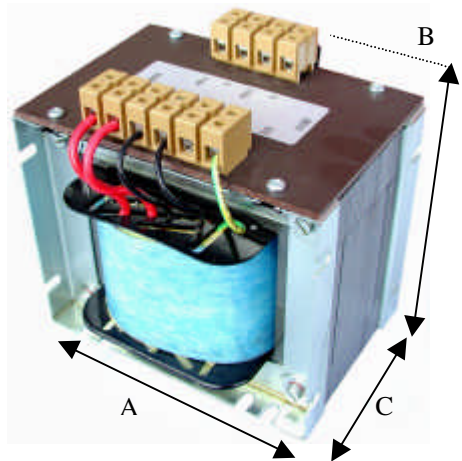
#### ORDERING INFORMATION & STANDARD CALIBRATION

| Part Number    | Battery Type | Nominal Voltage | Float Voltage | Boost Voltage |
|----------------|--------------|-----------------|---------------|---------------|
| BCT / -- / 12  | Lead Acid    | 12V ( 6 Cells)  | 13.7          | 15.0          |
| BCT / -- / 9C  | Nicad        | 12V ( 9 Cells)  | 12.6          | 13.5          |
| BCT / -- / 10C | Nicad        | 12V (10 Cells)  | 14.0          | 15.0          |
| BCT / -- / 24  | Lead Acid    | 24V (12 Cells)  | 27.4          | 30.0          |
| BCT / -- / 18C | Nicad        | 24V (18 Cells)  | 25.2          | 27.0          |
| BCT / -- / 20C | Nicad        | 24V (20 Cells)  | 28.0          | 30.0          |

NON-STANDARD --- example: BCT25/96

| Part Number   | Description   |
|---|---|
| BCT25/96  | CONTROLLER - calibrated for 48 cell Lead-Acid Battery |
| ↑    ↑    ↑    ↓<br>Type    96V (48 cell) Lead-Acid Battery set for Float Voltage of 109.9.0V (unless specified otherwise)<br>25A DC Current Limited Output |   |

**TRANSFORMER SPECIFICATION**



| DIMENSIONS (in mm) |     |     |     |        |                |
|--------------------|-----|-----|-----|--------|----------------|
| Standard           | A   | B   | C   | Wt     | Fixing Centres |
| 500VA              | 137 | 140 | 130 | 7.5 Kg | 84 x 115 x M5  |
| 1000VA             | 168 | 165 | 145 | 13 Kg  | 97 x 119 x M6  |
| 1600VA             | 216 | 230 | 155 | 21 Kg  | 107 x 160 x M8 |
| 2500VA             | 216 | 230 | 165 | 24 Kg  | 121 x 160 x M8 |

| TERMINALS        |                              |           |
|------------------|------------------------------|-----------|
| Standard Sizes   | Main Secondary Windings      |           |
| 500VA            | 16V 250VA                    | 16V 250VA |
| 1000VA           | 16V 500VA                    | 16V 500VA |
| 1600VA           | 16V 800VA                    | 16V 800VA |
| 2500VA           | 32V 2500VA                   | ---       |
| Primary Windings |                              |           |
| Supply Voltage   | 115V                         | 115V      |
| 230V +/- 20%     | Connect windings in series   |           |
| 115V +/- 20%     | Connect windings in parallel |           |
| Frequency        | 50 / 60 Hz                   |           |

| STANDARD TRANSFORMERS | ORDER CODE | AC Supply Voltage | Supply Current at Full Load | Fuse Rating (T) |
|-----------------------|------------|-------------------|-----------------------------|-----------------|
| 500VA                 | TXS101     | 115               | 4.35A                       | 8A              |
|                       |            | 230               | 2.18A                       | 4A              |
| 1000VA                | TXS102     | 115               | 8.70A                       | 16A             |
|                       |            | 230               | 4.35A                       | 8A              |
| 1600VA                | TXS103     | 115               | 13.92A                      | 25A             |
|                       |            | 230               | 6.96A                       | 12A             |
| 2500VA                | TXS104     | 115               | 21.74A                      | 40A             |
|                       |            | 230               | 10.87A                      | 20A             |

NOTES:

1. These Controllers are designed for NICAD and Lead-Acid (flooded cell) Batteries.
2. Transformers & Controllers are available separately.
3. Transformer Supply Fuse should be a 'Redspot' type T (anti-surge).
4. The Transformer shown is only an example.
5. 'Transformer Minimum Rating' is the minimum recommended VA for the specified output.
6. Alternative 'Standard Transformers' shown (--VA), are normally available ex-stock.
7. Other Supply voltages (i.e. 415V, 660V) and frequencies (i.e. 400Hz) are available to order.
8. Other Battery Voltages (i.e. 48Vdc, 110Vdc) are available to order.
9. Cased Chargers are available ... see 'WBT series' Data & Application Notes.
10. To measure Output current always use a good quality 'Moving Coil' or Digital, Ammeter.

FOR FULL PRODUCT RANGE PLEASE SEE OUR LATEST PRICE LIST



**CAPRICORN CONTROLS LIMITED**

INDUSTRIAL ELECTRONIC ENGINEERS  
SPECIALIST CONTROLS FOR ENGINE APPLICATIONS

Thorpe Close, Banbury, Oxon., OX16 4SW. England

Tel: +44 (0) 1295 272360 Fax: +44 (0) 1295 264766

E-mail: [sales@capricorn-controls.com](mailto:sales@capricorn-controls.com) Web: [www.capricorn-controls.com](http://www.capricorn-controls.com)

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