

# Battery Chargers : 10A - 40A BCT series

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

These chargers are normally supplied as a Controller and separate Transformer. For wall / floor mounting enclosed Chargers please see our WBT series data sheet.

See also: BCT12/24 & BCT15/12 for Battery Chargers with integral Transformer. These use the same electronics and are built onto the same base plate.

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.

**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 heatsink, 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) If the standing load is $\geq$ 500 mA the Amber Led will always be lit.

Red FAULT Led	=	Output open-circuit or Battery connections reversed or Battery Voltage < ½ Float Level (overridden in 'Boost Mode') or Thermal Overload (auto-resetting thermal trip on Controller heatsink)
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<b>COMPONENT SELECTION</b>
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<b>CONTROLLER</b>	BCT1020-12	BCT1020-12	BCT1020-12	BCT1020-24
Nominal Battery Voltage	<b>12Vdc</b>	<b>12Vdc</b>	<b>12Vdc</b>	<b>24Vdc</b>
Output Current Limit	<b>10A dc</b>	<b>15A dc</b>	<b>20A dc</b>	<b>10A dc</b>
Output Cables rating	20A Rms	30A Rms	40A Rms	20A Rms
Output Protection	Fuse	Fuse	Fuse	Fuse
Protection Rating	20A	32A	40A	20A
<b>TRANSFORMER</b>				
Minimum Rating	<b>350VA</b>	<b>500VA</b>	<b>650VA</b>	<b>650VA</b>
Main Secondary Voltage	16VAC	16VAC	16VAC	32VAC
Standard Transformers	500VA : TXS101	500VA : TXS101	1000VA : TXS102	1000VA : TXS102

<b>CONTROLLER</b>	BCT1020-24	BCT1020-24	BCT2040-12	BCT2040-12
Nominal Battery Voltage	<b>24Vdc</b>	<b>24Vdc</b>	<b>12Vdc</b>	<b>12Vdc</b>
Output Current Limit	<b>15A dc</b>	<b>20A dc</b>	<b>30A dc</b>	<b>40A dc</b>
Output Cables rating	30A Rms	40A Rms	60A Rms	80A Rms
Output Protection	Fuse	Fuse	Circuit Breaker	Circuit Breaker
Protection Rating	32A	40A	60A	80A
<b>TRANSFORMERS</b>				
Minimum Rating	<b>1000VA</b>	<b>1300VA</b>	<b>1000VA</b>	<b>1300VA</b>
Main Secondary Voltage	32VAC	32VAC	16VAC	16VAC
Standard Transformers	1000VA : TXS102	1600VA : TXS103	1000VA : TXS102	1600VA : TXS103

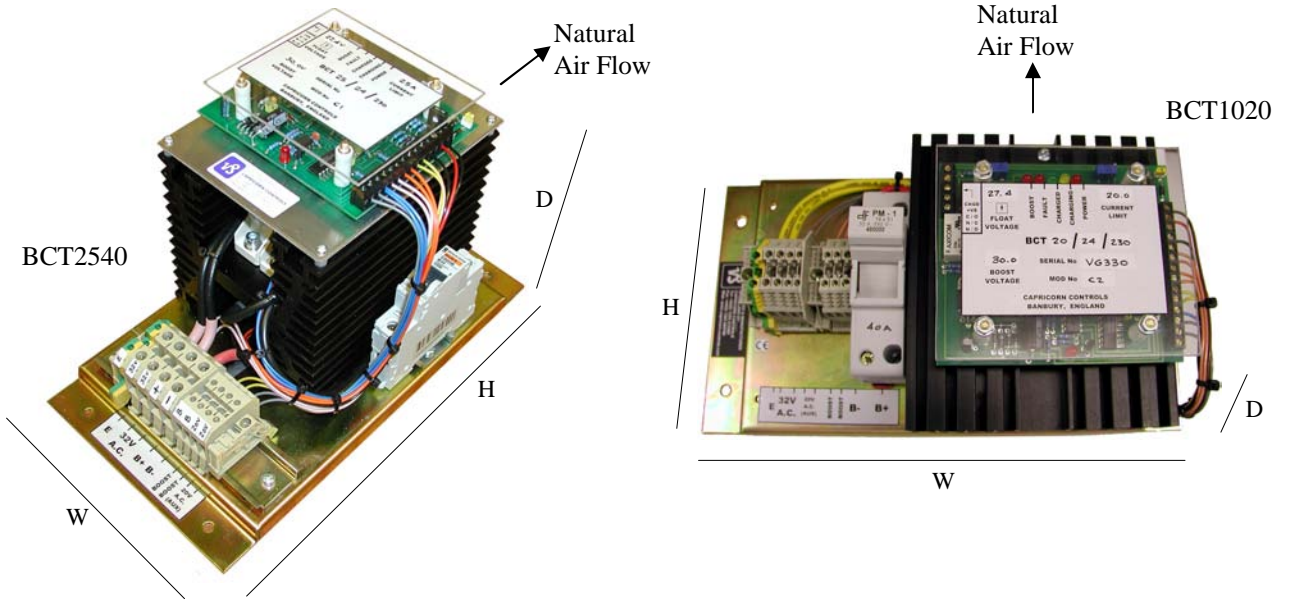
<b>CONTROLLER</b>	BCT2040-24	BCT2040-24	BCT2040-24	BCT2040-24
Nominal Battery Voltage	<b>24Vdc</b>	<b>24Vdc</b>	<b>24Vdc</b>	<b>24Vdc</b>
Output Current Limit	<b>25A dc</b>	<b>30A dc</b>	<b>35A dc</b>	<b>40A dc</b>
Output Cables rating	50A Rms	60A Rms	70A Rms	80A Rms
Output Protection	Circuit Breaker	Circuit Breaker	Circuit Breaker	Circuit Breaker
Protection Rating	50A	60A	70A	80A
<b>TRANSFORMER</b>				
Minimum Rating	<b>1600VA</b>	<b>2000VA</b>	<b>2200VA</b>	<b>2500VA</b>
Main Secondary Voltage	32VAC	32VAC	32VAC	32VAC
Standard Transformers	1600VA : TXS103	2500VA : TXS104	2500VA : TXS104	2500VA : TXS104

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
TXS - - -	Transformer			

NON-STANDARD --- example: BCT20/48

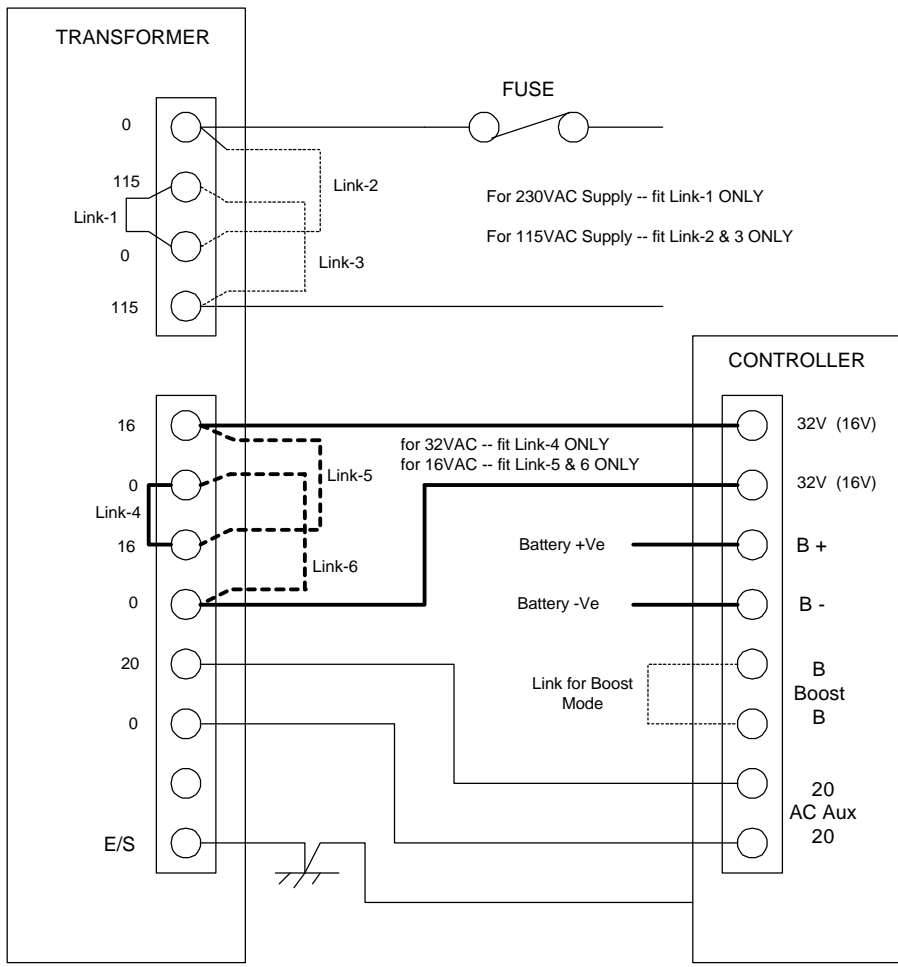
Part Number	Description
BCT20/48	CONTROLLER - calibrated for 48 cell Lead-Acid Battery
↑ ↑ ↑	48V (24 cell) Lead-Acid Battery set for Float Voltage of 55.0V (unless specified otherwise)
Type	20A DC Current Limited Output
Please contact the Sales Desk to order a non-standard transformer	

**CONTROLLERS**

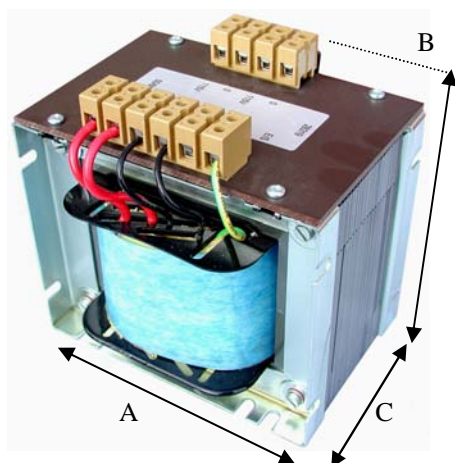


**TEMPERATURE RANGE :**  
 -20 deg C to +50 deg C (operating)  
 -40 deg C to +70 deg C (storage)

DIMENSIONS	BCT2540	BCT1020
Width (W)	155 mm	280 mm
Height (H)	280 mm	155 mm
Depth (D)	170 mm	106 mm
Fixing Centres	255 x 105 x M6	255 x 105 x M6
Net Weight	3.5 Kg	2.0 Kg



## 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:

- These Controllers are designed for NICAD and Lead-Acid, flooded cell Batteries.
- Transformers & Controllers are available separately.
- Transformer Supply Fuse should be a 'Redspot' type T (anti-surge).
- The Transformer shown is only an example.
- 'Transformer Minimum Rating' is the minimum recommended VA for the specified output.
- Our Standard Transformers have an auxiliary 20V 3VA winding to power the Controller.
- Other Supply voltages (i.e. 415V, 660V) and frequencies (i.e. 400Hz) are available to order.
- Other Battery Voltages (i.e. 48Vdc, 110Vdc) are also available to order.
- Cased Chargers are available ... see 'WBT series' Data & Application Notes.
- To measure Output current always use a good quality 'Moving Coil' or Digital, Ammeter.

PLEASE SEE OUR LATEST PRICE LIST FOR THE FULL PRODUCTS RANGE



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