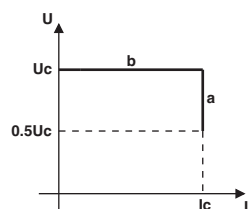


Automatic battery chargers

For not sealed lead-acid batteries



BCF...



a - constant current charge
b - constant voltage charge

| Order code | Rated output current | Rated output voltage DC | Qty per pkg | Wt |
|-------------------|----------------------|-------------------------|-------------|-------|
| | [A] | [V] | n° | [kg] |
| 1 charging level. | | | | |
| BCF 0250 12 | 2.5 | 12 | 1 | 0.332 |
| BCF 0450 12 | 4.5 | | 1 | 0.332 |
| BCF 0125 24 | 1.25 | 24 | 1 | 0.332 |
| BCF 0250 24 | 2.5 | | 1 | 0.332 |

Alarms

| | GREEN LED | RED LED | RELAY |
|------------------------|-----------|---------|-------|
| Correct output voltage | ON | OFF | ON |
| Polarity inverted | — | ON | — |
| Short circuit | OFF | OFF | OFF |
| Overload | OFF | OFF | OFF |

| Type | Maximum power consumption | | Mains fuse |
|-------------|---------------------------|-----|------------|
| | [VA] | [W] | [A] |
| BCF 0250 12 | 96 | 40 | 2 |
| BCF 0450 12 | 181 | 76 | 2 |
| BCF 0125 24 | 96 | 39 | 2 |
| BCF 0250 24 | 181 | 72 | 2 |

General characteristics

- Switching technology
- Modular housing, DIN rail mounting
- Wide auxiliary supply range.

Protections:

- Mains input fuse
- Battery output fuse
- Electronic lock in case of short circuit on battery terminals, battery polarity inversion, low voltage across battery poles (<0.5 Ue)
- Relay alarm output.

LED indications:

- Correct output voltage
- Battery polarity inverted.

Operational characteristics

- Auxiliary supply voltage: 100...240VAC (±10%) 50/60Hz (±5%)
- Charging cycle: in accordance with DIN 41773 standards
- Current limitation
- IEC degree of protection: IP20
- Fixed clamping screw terminal block with captive screws.

Alarm output circuit

- Type of output: 3A 250VAC relay (AC1).

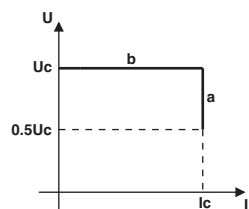
Certifications and compliance

Certifications obtained: cURus and GOST.
Compliant with standards: IEC/EN 60950-1, IEC/EN 61000-6-2, IEC/EN 61000-6-3.

For sealed and not sealed lead-acid batteries



BCG...



a - constant current charge
b - constant voltage charge

| Order code | Rated output current | Rated output voltage DC | Qty per pkg | Wt |
|-------------------|-------------------------------------|-------------------------|-------------|-------|
| | [A] | [V] | n° | [kg] |
| 1 charging level. | | | | |
| BCG 06 12 | 6 | 12 | 1 | 0.532 |
| BCG 12 12 | 12 | | 1 | 0.710 |
| BCG 05 24 | 5 | 24 | 1 | 0.532 |
| BCG 10 24 | 10 | | 1 | 0.710 |
| Accessories. | | | | |
| BCG X00 | Adapter for DIN rail vertical mount | | 1 | 0.022 |

Alarms

| | POWER ON | REV | RELAY/ALARM LED |
|------------------------|----------|-----|-----------------|
| Correct output voltage | ON | OFF | ON |
| Polarity inverted | — | ON | — |
| Short circuit | OFF | OFF | OFF |
| Overload | OFF | OFF | OFF |

| Type | Maximum power consumption | | Mains fuse (Type T) |
|-----------|---------------------------|-----|---------------------|
| | [VA] | [W] | [A] |
| BCG 06 12 | 97 | 14 | 8 |
| BCG 12 12 | 195 | 31 | 16 |
| BCG 05 24 | 158 | 20 | 6.3 |
| BCG 10 24 | 311 | 36 | 12 |

General characteristics

- Switching technology
- Screw fixing or DIN rail mounting
- Two charging voltages selectable by DIP-switch
- Wide auxiliary supply range
- Boost signal controlled by external contact
- Protection for short-circuit, overload and battery polarity inverted
- Charging current limiting trimmer resistor
- Alarm relay output with changeover contact.

Protections:

- Input fuse at AC side
- Output protection to save the battery (in case of battery charger malfunction)
- Short circuit at output side (hiccup mode)
- Reverse polarity
- Automatic reset when the anomaly is removed.

LED indications:

- Power ON
- Charging operation (I>20% Ic)
- Overload or short circuit
- Battery polarity inverted.

Operational characteristics

- Auxiliary supply voltage: 110...240VAC (90...264VAC)
- Charging voltage selectable between two values by dip-switch:
 - Not sealed Lead-Acid batteries
 - Sealed Lead-Acid batteries
- Maximum charging current setting by external trimmer:
 - 20...100% of rated current
- Changeover output for alarming:
 - 30VDC 5A
 - Active if alarms are not present
- Charging working cycle constant current / constant voltage in accordance with DIN 41773 standards
- IEC degree of protection: IP20.

Alarm output circuit

- Type of output: 5A 30VDC relay (AC1).

Certifications and compliance

Certifications: cULus (pending)
Compliant with standards: IEC/EN 60950-1, IEC/EN 61000-6-2, IEC/EN 61000-6-3.

For lead-acid batteries



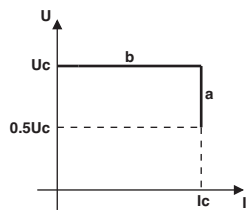
31 BCE 0312
31 BCE 2V524



31 BCE 0612
31 BCE 0524



31 BCE 1212
31 BCE 1024



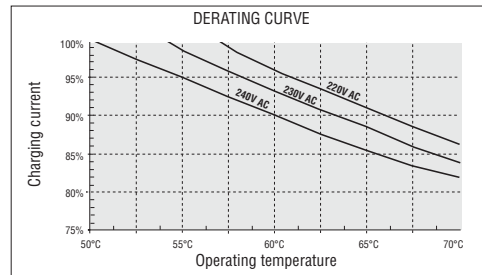
a - constant current charge
b - constant voltage charge

| Order code | Rated output current | Rated output voltage DC | Qty per pkg | Wt |
|-------------------|----------------------|-------------------------|-------------|-------|
| | [A] | [V] | n° | [kg] |
| 1 charging level. | | | | |
| 31 BCE 0312 | 3 | 12 | 1 | 1.984 |
| 31 BCE 0612 | 6 | | 1 | 4.832 |
| 31 BCE 1212 | 12 | | 1 | 8.690 |
| 31 BCE 2V524 | 2,5 | 24 | 1 | 1.992 |
| 31 BCE 0524 | 5 | | 1 | 4.960 |
| 31 BCE 1024 | 10 | | 1 | 9.560 |

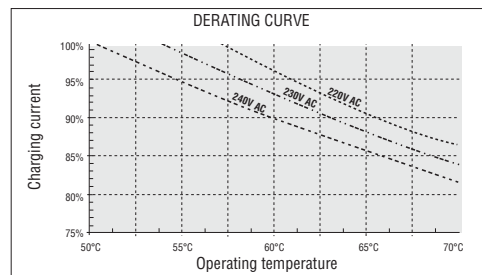
| Type | Maximum power consumption | dissipation | Mains fuse | Output fuse |
|-----------|---------------------------|-------------|------------|-------------|
| | [VA] | [W] | [A] | [A] |
| BCE 0312 | 117 | 24 | — | 6.3 |
| BCE 0612 | 222 | 46 | 4 | 12.5 |
| BCE 1212 | 400 | 73 | 6.3 | 25 |
| BCE 2V524 | 166 | 26 | — | 6.3 |
| BCE 0524 | 317 | 40 | 4 | 12.5 |
| BCE 1024 | 610 | 66 | 6.3 | 25 |

DERATING CURVES

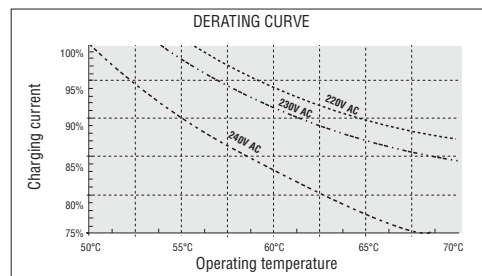
BCE 2V5 - BCE 03



BCE 05 - BCE 06



BCE 10 - BCE 12



General characteristics

- Linear technology
- Screw fixing mounting.
- Protections:
 - Mains input fuse (except for BCE 2V5 and BCE 03)
 - Battery output fuse
 - Electronic lock in case of short circuit on battery terminals, battery polarity inversion, low voltage across battery poles (<0.5 Ue) and disconnected battery
- Alarm output:
 - Negative static, NPN transistor for BCE 2V5 and BCE 03
 - Relay for BCE 05, BCE 06, BCE 10 and BCE 12.
- LED indications:
 - Power ON
 - Charge ($I > 20\% I_c$)
 - Alarm for protection tripping.

Operational characteristics

- Auxiliary supply voltage: 220...240VAC ($\pm 10\%$), 50/60Hz ($\pm 5\%$)
- Charging current: 30-100% I_e adjustable
- Charging cycle: in accordance with DIN 41773 standards
- Current limitation
- IEC degree of protection: IP00
- Clamping screw terminal block with captive screws:
 - Removable for BCE 03 and BCE 2V5
 - Fixed for BCE 05, BCE 06, BCE 10 and BCE 12.

Alarms

BCE 2V524 - BCE 0312
These types have a static alarm output for the control of a relay or indicator, maximum 300mA duty. If it is connected to a relay, this must be normally energised in absence of alarm. In alarm conditions with ALARM LED switched on, or in absence of supply, the relay de-energises.

BCE 0524 - BCE 0612 - BCE 1024 - BCE 1212
These types have a normally energised relay alarm output.

In alarm conditions with ALARM LED switched on, or in absence of supply, the relay de-energises.

Possible causes of alarm include:

- Low battery voltage
- Battery fuse blown
- Battery not connected
- Battery polarity inverted.

Alarm output circuit

- BCE 2V524 - BCE 0312**
- Type of output:
 - Negative static; NPN transistor
 - Maximum voltage applicable to load: +V battery terminal
 - Maximum output current: 300mA
 - Maximum overload current for 1 second: 2A
 - Dynamic over-voltage protection with inductive load.

BCE 0524 - BCE 0612 - BCE 1024 - BCE 1212

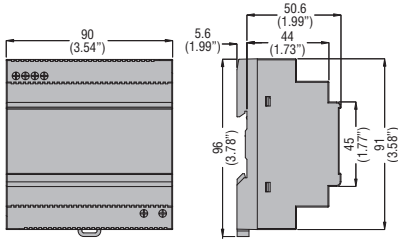
- Type of output:
 - Relay: 1 changeover contact (SPDT)
 - Rated voltage: 250VAC
 - Maximum admissible voltage: 440VAC
 - IEC rated capacity in AC1 duty: 5A 250VAC I_{th}
 - IEC rated capacity in DC13 or DC14 duty: 5A 30VDC
 - Electrical life: $>10^5$ cycles
 - Mechanical life: $>30 \times 10^5$ cycles.

① The output is not overload or short-circuit protected. It is however capable of switching on a 3W filament bulb.

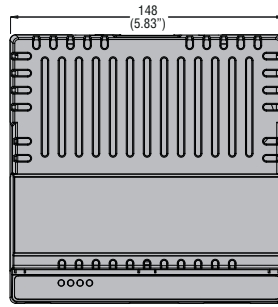
Certifications and compliance

Certifications obtained: GOST.
Compliant with standards: IEC/EN 60335-2-29.

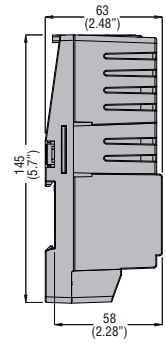
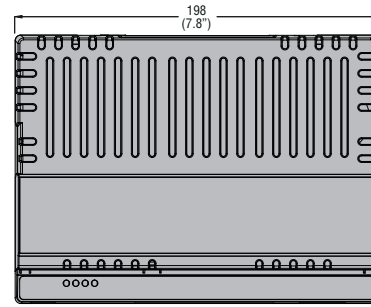
BCF...



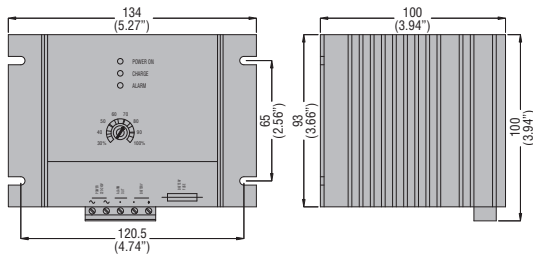
BCG 06 12 - BCG 05 24



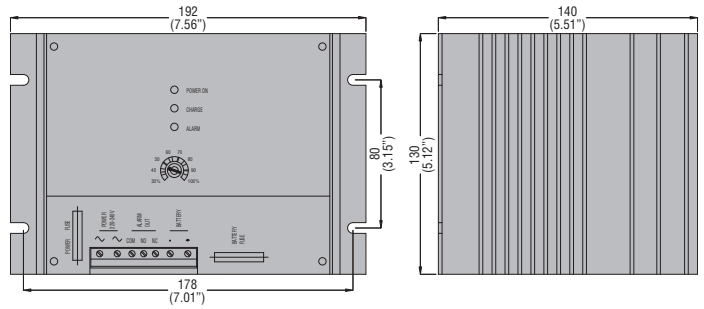
BCG 12 12 - BCG 10 24



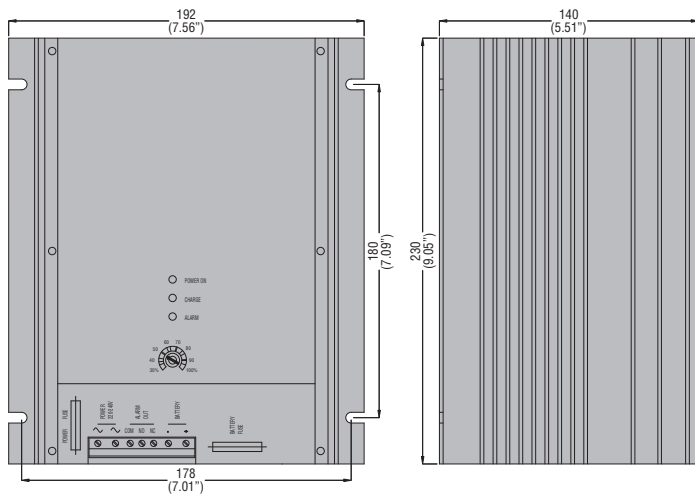
BCE 0312 - BCE 2V524



BCE 0612 - BCE 0524

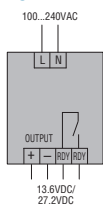


BCE 1212 - BCE 1024

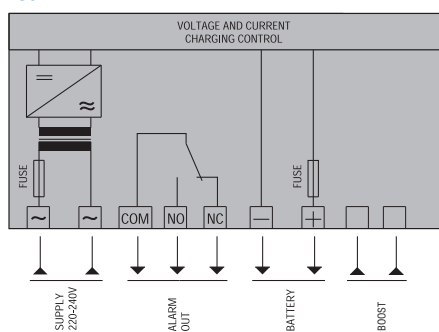


Wiring diagrams

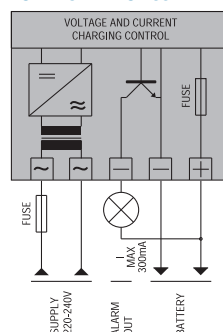
BCF...



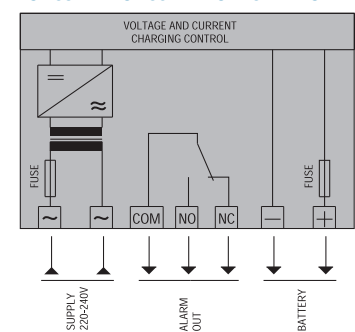
BCG...



BCE 2V5... - BCE 03...



BCE 05... - BCE 06... - BCE 10... - BCE 12...



| TYPE | BCG... | BCF... | BCE... |
|---------------------------------------|---|---|---|
| Description | Single phase automatic battery charger 1 charging level for sealed and not sealed lead-acid batteries | Single phase automatic battery charger 1 charging level for not sealed lead-acid batteries | |
| Supply voltage | 110...240VAC -20...+10% 50/60Hz | 100...240VAC ±10% 50/60Hz | 220...240VAC ±10% 50/60Hz |
| Rated output voltage U _e | 12-24VDC | | |
| Rated charging current I _e | 6-12A (12VDC) 5-10A (24VDC) | 2.5-4.5A (12VDC) 1.25-2.5A (24VDC) | 3-6-12A (12VDC) 2.5-5-10A (24VDC) |
| CHARGING CYCLE | | | |
| Reference standards | DIN 41773 | | |
| Diagram | <p>a - constant current charge b - constant voltage charge</p> | | |
| End charge voltage U _c | 12V battery: 13.8 or 13.5 (default) 24V battery: 27.0 or 26.7 (default) | 12V battery: 13.6VDC (2.27V/cell) 24V battery: 27.2VDC (2.27V/cell) | 12V battery: 13.8VDC (2.3V/cell) 24V battery: 27.6VDC (2.3V/cell) |
| Charge current I _c | Adjustable 20% to 100% I _e (using potentiometer) | Fixed | Adjustable 30% to 100% I _e (using potentiometer) |
| Current limit | Yes | | |
| Boost | +4.4% U _C | — | — |
| PROTECTIONS | | | |
| | <ul style="list-style-type: none"> – Mains supply fuse – Charging inhibition due to: <ul style="list-style-type: none"> • short circuit at battery terminals • battery polarity inverted • low voltage at battery poles (<0.5 U_e) | <ul style="list-style-type: none"> – Mains supply fuse – Charging inhibition due to: <ul style="list-style-type: none"> • short circuit at battery terminals • battery polarity inverted • low voltage at battery poles (<0.5 U_e) | <ul style="list-style-type: none"> – Mains supply fuse (5, 6, 10, 12A types only) – Battery output fuse – Charging inhibition due to: <ul style="list-style-type: none"> • short circuit at battery terminals • battery polarity inverted • low voltage at battery poles (<0.5 U_e) • disconnected battery |
| ALARM OUTPUT CIRCUIT | | | |
| Type of output | 1 relay 5A 30VDC | 1 relay 3A 250VAC (AC1) | Static (NPN transistor) ❶; relay with 1 c/o contact (SPDT), 5A 250VAC ❷ |
| AMBIENT CONDITIONS | | | |
| Operating temperature | -30...+55°C (+55...70°C with derating -1,5%In / °C) | -40...+51°C | -10...+50°C |
| Storage temperature | -30...+80°C | -40...+85°C | -30...+80°C |
| HOUSING | | | |
| Version | — | Modular | Open frame |
| Degree of protection | IP20 | IP20 | IP00 |
| Cooling | Natural | | |
| Connections | Fixed terminals | Fixed terminals | Removable/plug-in terminals❶ Fixed terminals❷ |

❶ For 2.5A and 3A types only.
❷ For 5, 6, 10 and 12A types only.



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