

BCR Battery Charger

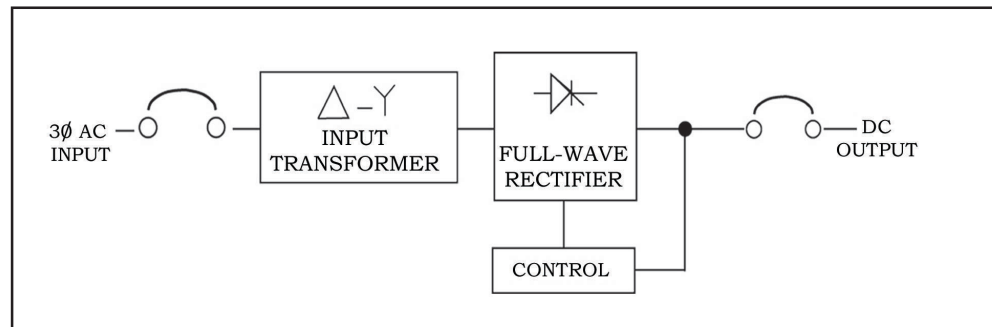
BCR Battery Charger Systems 110, 130 VDC 220, 260 VDC 50 Amps to 600 Amps



- ◆ High reliability - exceeds 140,000 hours (16 years) MTBF
- ◆ Phase-controlled six SCR topology
- ◆ Low audible noise
- ◆ Maintains DC voltage regulation at $\pm 0.5\%$ on float
- ◆ Long life LED indicators
- ◆ Output is maintained even with the loss of one phase input – insensitive to phase rotation
- ◆ Industrial grade – built to operate in extreme environments
- ◆ Vacuum impregnated magnetics with 200°C epoxy insulation
- ◆ All components are front accessible – no side or back clearance required
- ◆ Lighted mimic panel display
- ◆ High efficiency-greater than 90%

The BCR Battery Chargers from AMETEK Solidstate Controls are thyristor-based systems designed for high efficiency conversion of incoming commercial AC to DC power for charging large banks of station batteries, while supplying power to continuous DC loads, such as Inverters.

The BCR Battery Charger is intended for use in UPS systems, as well as a stand-alone device for battery charging only applications.



Battery Charger Block Diagram

AC Input

| | |
|------------|--|
| Voltages: | 208, 220, 380, 415 & 480 VAC/3-phase, 3 wire |
| Range: | +10, -10% for 1% output regulation |
| Range: | +10, -15% without discharging batteries |
| Frequency: | 50 or 60 Hz \pm 5% |

DC Output

| | |
|------------------------|--|
| Float Voltage: | 2.25 VPC for lead-acid batteries; \pm 5% adjustment |
| Equalize Voltage: | 2.33 VPC for lead-acid batteries \pm 5% adjustment |
| Regulation (Float): | \pm 0.5% |
| Regulation (Equalize): | \pm 1.0% |
| Ripple: | <2% RMS with battery connected per NEMA PE-5, 1996 |
| Current Limit: | Factory set at 115%, adjustable from 50-115% |

Conversion Efficiencies

| | |
|--------|------------------------------|
| AC-DC: | 90-95% depending on capacity |
|--------|------------------------------|

Environmental

| | |
|---|--|
| Ambient Temp.: | 0°C to 40°C (50°C optional) |
| Relative Humidity: | 0-95% non-condensing |
| Operating Altitude: | 0 to 2500 meters (8300 ft.) (at 25°C ambient temperature) |
| Audible Noise: | 60-65 dB(A) @1.5m typical |
| Addition of drip shield may increase the noise by 1-3dB (A) | |

Cable Entry

Top or Bottom

Controls

Float/Equalize Push buttons w/indicators
0-100 Hr Equalize Timer, manual start, auto reset
Float Voltage Potentiometer on Front Panel
Equalize Voltage Potentiometer on Front Panel

Standard Features

Circuit Breakers

| | |
|---------------------|----------------------------|
| AC Input: | |
| 3 pole molded case | (Rated 14 KAIC) DC Output: |
| 2 pole* molded case | (Rated 10 KAIC) |

* Nominal 260 VDC units use a 3 pole breaker

Meters (2% Panel type)

DC Output Voltmeter
DC Output Ammeter

Cabinet

NEMA-1 (IP-20)

Indicators and Alarms

Low DC Voltage**
Fan Failure (light only)
AC Available (light only)
Common (Summary) Alarm**

**Alarms supplied with one SPDT contact rated for 3 Amps at 120 VAC

Optional Features

Meters

AC Input Voltmeter (1 meter w/switch)
AC Input Ammeter (1 meter w/switch)
DC Ground Detect Meter and Switch

Optional Features (con't)

Digital Meters (Note: Selecting this option, provides **ALL** digital meters)

Alarm Indicators

Alarm Packages (Package includes alarm and LED):

Option Package "A"

- Positive to Ground
- Negative to Ground
- Over Temperature
- Charger Failure

Option Package "B"

- High DC Voltage
- AC Power Failure

Option Package "C"

- Charger Fuse Blown
- Low AC Input Voltage

Option Package "D"

- Adds form "C" contacts to all standard and optional alarms

Option Package "E"

- DC Output Breaker Open
- AC Input Breaker Open

Option Package "F"

- High DC Disconnect
- End of Discharge

Option Package "H"

- Charger Available
- Charger Overload

Additional Optional Features

- Audible Alarm with silence pushbutton
- Latching Alarm w/reset
- Lamp test pushbutton
- Alarm test
- Blocking Diode for parallel charger operation
- Charger Output (AC ripple) filter
- Twelve (12) Pulse design to reduce reflected harmonics to < 10%
- DC rated alarm contacts
- 65 KAIC AC Input Breaker
- 20 KAIC DC Output Breaker
- Space heater w/thermostat and circuit breaker
- Reverse Polarity Indicator
- Auto-Equalize Timer
- Pad-lockable breakers

Cabinet Options

Top-Mounted drip shield
Fungus/Moisture Spray
Vermin Screens
Lifting eye bolts
20% spare terminals
Conformal Coating of PC Boards
Contact factory for additional options

130 VDC OUTPUT

| Model | Output Amps | DC Volts | AC/DC % EFF | 3Ø AC Input/Frequency ¹ | | | | Cabinet Style | Heat Loss (Watts) | Circuit Breaker Ampacity | | | | Weight ² | | |
|------------|-------------|----------|-------------|------------------------------------|--------|--------|--------|---------------------|-------------------|--------------------------|---------------|--------|--------|---------------------|------|-----|
| | | | | AC Amperes/Phase | | | | | | DC Output | Main AC Input | | | | Lbs. | Kg. |
| | | | | 208/60 | 480/60 | 380/50 | 415/50 | | | | 208/60 | 480/60 | 380/50 | 415/50 | | |
| BCR12050-* | 50 | 130 | 91 | 33 | 14 | 18 | 16 | GTDIX | 642 | 80 | 50 | 20 | 25 | 25 | 615 | 280 |
| BCR12075-* | 75 | 130 | 91 | 49 | 21 | 27 | 25 | GTDIX | 964 | 125 | 70 | 30 | 35 | 35 | 654 | 297 |
| BCR12100-* | 100 | 130 | 92 | 65 | 28 | 35 | 32 | GTDIX | 1130 | 150 | 90 | 40 | 50 | 50 | 710 | 322 |
| BCR12150-* | 150 | 130 | 93 | 96 | 42 | 53 | 48 | GTDIX | 1468 | 225 | 125 | 60 | 70 | 70 | 791 | 358 |
| BCR12200-* | 200 | 130 | 93 | 128 | 56 | 70 | 64 | GTDIX | 1957 | 300 | 175 | 70 | 90 | 90 | 943 | 428 |
| BCR12300-* | 300 | 130 | 94 | 190 | 82 | 104 | 95 | GTDIX | 2489 | 450 | 250 | 110 | 150 | 125 | 1296 | 588 |
| BCR12400-* | 400 | 130 | 95 | 251 | 109 | 137 | 126 | GTDIXF ³ | 2737 | 600 | 350 | 150 | 175 | 175 | 1453 | 659 |
| BCR12500-* | 500 | 130 | 95 | 314 | 136 | 172 | 157 | GTDIXF ³ | 3421 | 800 | 400 | 175 | 225 | 200 | 1972 | 894 |
| BCR12600-* | 600 | 130 | 95 | 376 | 163 | 206 | 189 | GTDIXF ³ | 4105 | 900 | 500 | 225 | 300 | 250 | 2192 | 994 |

260 VDC OUTPUT

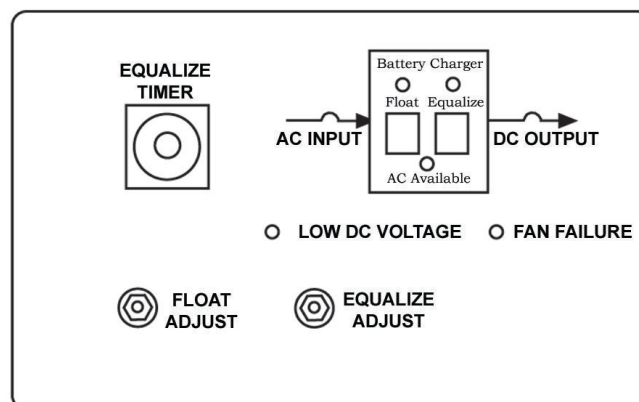
| | | | | | | | | | | | | | | | | |
|------------|-----|-----|----|-----|-----|-----|-----|---------------------|------|-----|-----|-----|-----|-----|------|------|
| BCR25050-* | 50 | 260 | 91 | 65 | 28 | 36 | 33 | GTDIX | 1286 | 80 | 90 | 40 | 50 | 50 | 672 | 305 |
| BCR25075-* | 75 | 260 | 91 | 98 | 43 | 54 | 49 | GTDIX | 1929 | 125 | 125 | 60 | 70 | 70 | 734 | 333 |
| BCR25100-* | 100 | 260 | 92 | 130 | 56 | 71 | 65 | GTDIX | 2261 | 150 | 175 | 80 | 90 | 90 | 844 | 383 |
| BCR25150-* | 150 | 260 | 93 | 192 | 83 | 105 | 96 | GTDIX | 2935 | 225 | 250 | 110 | 150 | 125 | 1033 | 469 |
| BCR25200-* | 200 | 260 | 93 | 256 | 111 | 140 | 128 | GTDIX | 3914 | 300 | 350 | 150 | 200 | 175 | 1442 | 65 |
| BCR25300-* | 300 | 260 | 94 | 380 | 165 | 208 | 191 | GTDIXF | 4979 | 450 | 500 | 225 | 300 | 250 | 1703 | 772 |
| BCR25400-* | 400 | 260 | 95 | 502 | 217 | 275 | 251 | GTDIXF ³ | 5474 | 600 | 700 | 300 | 350 | 350 | 1870 | 848 |
| BCR25500-* | 500 | 260 | 95 | 627 | 272 | 343 | 314 | GTDIXF ³ | 6842 | 800 | 800 | 350 | 450 | 400 | 2919 | 1324 |

¹At Nominal Line & Current Limit

²Weight of 60 Hz units; 50 Hz 7% more
12-pulse designs are 7% heavier....contact the factory

³Consult factory for cabinet dimensions on 50 Hz design

*NOTE: See next page for model number configuration



Lighted Mimic Panel Block Diagram

General Specifications

BCR

110 VDC OUTPUT

| Model | Output Amps | DC Volts | AC/DC % EFF | 3Ø AC Input/Frequency ¹ | | | | Cabinet Style | Heat Loss (Watts) | Circuit Breaker Ampacity | | | | Weight ² | | |
|------------|-------------|----------|-------------|------------------------------------|--------|--------|--------|---------------------|-------------------|--------------------------|---------------|--------|--------|---------------------|------|-----|
| | | | | AC Amperes/Phase | | | | | | DC Output | Main AC Input | | | | | |
| | | | | 208/60 | 480/60 | 380/50 | 415/50 | | | | 208/60 | 480/60 | 380/50 | 415/50 | Lbs. | Kg. |
| BCR12050-* | 50 | 110 | 91 | 28 | 12 | 15 | 14 | GTDIX | 544 | 80 | 35 | 20 | 20 | 20 | 615 | 280 |
| BCR12075-* | 75 | 110 | 91 | 42 | 18 | 23 | 21 | GTDIX | 816 | 125 | 60 | 25 | 30 | 30 | 654 | 297 |
| BCR12100-* | 100 | 110 | 92 | 56 | 24 | 30 | 28 | GTDIX | 957 | 150 | 70 | 30 | 40 | 35 | 710 | 322 |
| BCR12150-* | 150 | 110 | 93 | 82 | 36 | 45 | 41 | GTDIX | 1242 | 225 | 125 | 50 | 60 | 60 | 791 | 358 |
| BCR12200-* | 200 | 110 | 93 | 110 | 48 | 60 | 55 | GTDIX | 1656 | 300 | 150 | 60 | 80 | 70 | 943 | 428 |
| BCR12300-* | 300 | 110 | 94 | 163 | 71 | 89 | 82 | GTDIX | 2106 | 450 | 225 | 90 | 125 | 110 | 1296 | 588 |
| BCR12400-* | 400 | 110 | 95 | 215 | 93 | 118 | 108 | GTDIXF ³ | 2316 | 600 | 300 | 125 | 150 | 150 | 1453 | 659 |
| BCR12500-* | 500 | 110 | 95 | 269 | 117 | 147 | 135 | GTDIXF ³ | 2895 | 800 | 350 | 150 | 200 | 175 | 1972 | 894 |
| BCR12600-* | 600 | 110 | 95 | 323 | 140 | 177 | 162 | GTDIXF ³ | 3474 | 900 | 450 | 125 | 225 | 225 | 2192 | 994 |

220 VDC OUTPUT

| | | | | | | | | | | | | | | | | |
|------------|-----|-----|----|-----|-----|-----|-----|---------------------|------|-----|-----|-----|-----|-----|------|------|
| BCR25050-* | 50 | 220 | 91 | 56 | 24 | 31 | 28 | GTDIX | 1088 | 80 | 70 | 30 | 40 | 35 | 672 | 305 |
| BCR25075-* | 75 | 220 | 91 | 84 | 36 | 46 | 42 | GTDIX | 1632 | 125 | 125 | 50 | 60 | 60 | 734 | 333 |
| BCR25100-* | 100 | 220 | 92 | 111 | 48 | 61 | 56 | GTDIX | 1913 | 150 | 150 | 60 | 80 | 70 | 844 | 383 |
| BCR25150-* | 150 | 220 | 93 | 165 | 71 | 90 | 83 | GTDIX | 2484 | 225 | 225 | 90 | 125 | 125 | 1033 | 469 |
| BCR25200-* | 200 | 220 | 93 | 220 | 95 | 120 | 110 | GTDIX | 3312 | 300 | 300 | 125 | 150 | 150 | 1442 | 654 |
| BCR25300-* | 300 | 220 | 94 | 326 | 141 | 179 | 164 | GTDIXF | 4213 | 450 | 450 | 200 | 225 | 225 | 1703 | 772 |
| BCR25400-* | 400 | 220 | 95 | 431 | 187 | 236 | 216 | GTDIXF ³ | 4632 | 600 | 600 | 250 | 300 | 300 | 1870 | 848 |
| BCR25500-* | 500 | 220 | 95 | 538 | 233 | 295 | 270 | GTDIXF ³ | 5789 | 800 | 700 | 300 | 400 | 350 | 2919 | 1324 |

¹At Nominal Line & Current Limit

²Weight of 60 Hz units; 50 Hz 7% more

12-pulse designs are 7% heavier....contact the factory

³Consult factory for cabinet dimensions on 50 Hz design

*A complete Battery Charger model number includes the AC input voltage, DC output voltage and input frequency. To "build" a model number, use the "code" in the matrix shown below.

Model Number: BCR12100T-XX-YY-AA

where T=12 pulse design
XX=AC Input Voltage
YY=DC Output Voltage
AA=Input Frequency

| 12-Pulse | | AC Input Volts | Code | DC Output Volts | Code | Input Frequency | Code |
|----------|---|----------------|------|-----------------|------|-----------------|------|
| Y | N | | | | | | |
| Code | | | | | | | |
| T | - | 208 | 20 | 110 | 11 | 60 | 60 |
| | | 480 | 48 | 130 | 13 | 50 | 50 |
| | | 380 | 38 | 220 | 22 | | |
| | | 415 | 41 | 260 | 26 | | |

Example: A 12-pulse, 300 Amp Battery Charger with 480 Volt, 60 Hz input; 220 VDC output: Model No. BCR25300T-48-22-60. If voltage code is not listed simply place a "C" at the end of the model #. Example: Model No BCR25300TC

Specifications subject to change without notice

Cabinet Dimensions

| Cabinet Style | Inches (mm) | | | | |
|---------------|--------------|---|-----------|---|-----------|
| | H | x | W | x | D |
| GTDIX | 79 (2007) | x | 32 813 | x | 36 914 |
| GTDIXF | 86 (2184) | x | 32 813 | x | 36 914 |

Certain optional features and/or combinations may require larger cabinets. Contact factory.

Consult your local Solidstate Controls representative or the factory if you have any questions.



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is ISO 9001 Certified

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