

# RTB.ul

## Industrial 3-Ph Battery Chargers

From 40 to 220 Vdc, 50-200 A

DC UPS

Borri RTB.ul range of Industrial Thyristor Controlled 3-Phase Battery Chargers are designed and built for the harshest conditions and to provide high reliable power supply and battery charging capability in a compact standardized solution.

The RTB.ul is designed to cover the lower range of industrial chargers but still offering all the functions and controls with Borri microprocessor controller providing reliable operations with ease of settings and communication.

Built with a rugged thyristor-controlled rectifier bridge suitable for charging nickel-cadmium or lead acid batteries while simultaneously supplying DC loads.



## Industrial Power

### Applications

- Oil & Gas.
- Petrochemical.
- Power Generation.
- Transportation.
- Mining industries.
- Transmission & distribution.
- Other industrial applications.

### Main features

- Proven microprocessor control.
- Large LCD panel with mimic panel and history.
- Wide selection of alarms, indications and measurements.
- Electronic battery and charger output current limit.
- Rugged thyristor bridge with isolation transformer.
- Communication ports and potential free contacts.
- 4 level battery charging including optional manual charge.
- High MTBF and low MTTR.
- 10 programmable alarm and status LEDs.
- Operates with Nickel-cadmium (vented/ gas recombination) and Lead acid batteries (vented/ gas recombination).
- Advanced Battery Management.
- Flexible in-built features.
- Operation without battery (Rectifier).
- Easy maintenance and serviceability.

**BORRI**<sup>®</sup>

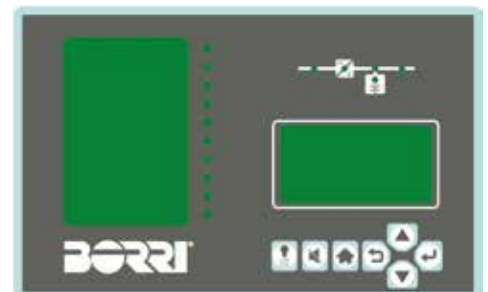
### RTB.ul technical data

Rating (A)	50	100	150	200
<b>Input</b>				
Nominal voltage	208/480/600 Vac 3-phase $\pm 10\%$ (others on request)			
Frequency	60 Hz $\pm 5$ Hz			
<b>Output</b>				
Nominal voltage	40/125/220 Vdc			
Static voltage regulation	$\pm 1\%$			
Voltage ripple	$\leq 1-2\%$ with and without battery depending on output voltage			
Overload capacity	$< 120\%$ for 20 min; $< 150\%$ for 2 min; $> 150\%$ for 20 s (protection electronic current limit)*			
Charging characteristic	Constant current / constant voltage (I/U as per IEC 478-1) during float charge			
<b>System</b>				
Dimensions WxDxH (mm/inches)	600x600x1900 / 23.62x23.62x74.80			
Color	ANSI 61 (other colors optional)			
Protection degree	NEMA 1 (other protection degrees up to NEMA 3R optional)			
Operating temperature	$-10^{\circ}\text{C}$ to $+40^{\circ}\text{C}$ / $14^{\circ}\text{F}$ to $104^{\circ}\text{F}$ (up to $55^{\circ}\text{C}$ / $131^{\circ}\text{F}$ available as option)			
Storage temperature	$-20^{\circ}\text{C}$ to $+70^{\circ}\text{C}$ / $-4^{\circ}\text{F}$ to $158^{\circ}\text{F}$			
Altitude	$< 1000$ m / $< 3280.84$ ft (derating according to EN 62040-3)			
Audible noise at 1 meter (dBA)	$< 55$ to $65$ dBA at 1 m / 39.37 inches depending on rating and fan redundancy			
<b>User Interface</b>				
Front panel	LCD panel, LED mimic, function keys. 10 programmable alarm and status LEDs			
Standard alarms	AC Fail, DC Hi, DC Low, Charger Fail, Overload, Blown Fuses, Battery Discharge, Common Alarm (many other available as standard)			
Connectivity	Potential free contacts (available as option)			
<b>Standard</b>				
CSA / UL Certified (file n° 263098); Safety: IEC EN 50178, IEC EN 62040-1; EMC: IEC EN 61000-6-2, IEC EN 61000-6-4, IEC EN 62040-2; Test and performance: IEC EN 60146; Marking: CE				

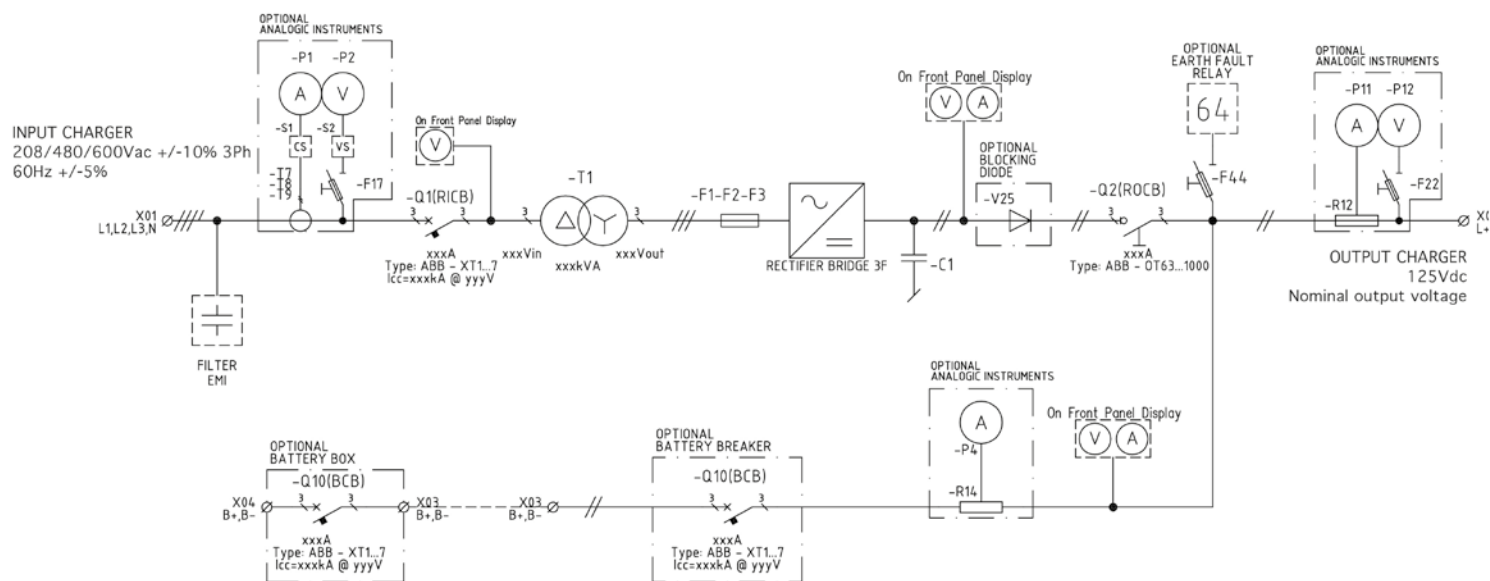
\*available as option

## Standard features

- Internal rectifier input circuit breaker and output switch.
- 6-pulse rectifier bridge with input isolation transformer.
- Output LC ripple filter.
- Rectifier protection fuse.
- Audible alarm.
- Floor mounted cabinet with NEMA 1 protection and NEMA 1 open door.
- Power and control cable markings.
- Halogen free cable.
- Component markings.
- Bottom cable entry.
- Standard labeling / nameplate.
- Advanced Multi-functional LCD panel with active mimic diagram.
- 10 programmable alarm and status LEDs.



## RTB.ul schematic (single configuration)



Other configurations available:

- Dual Charger (one battery with load sharing)
- Redundant

## Options

Borri's engineer can help you to design the best solution for your application with a wide range of options, some of which are:

### System

- Rectifier input fuse or switch.
- Battery CB or switch in rectifier.
- Battery monitoring and testing system.
- RS485 MODBUS communication port.
- Battery CB or fuse box.
- DC voltage dropper diodes.
- DC distribution.
- Blocking diodes.
- Tropicalized control electronics boards.

### Alarms and measurement

- Analog meters.
- Additional LED alarm indicators.
- Additional Relay cards 2x8 free contacts.
- Fan failure alarm.
- Low battery electrolyte level alarm.
- Temperature dependent battery charging with temp. probe.
- Battery circuit failure alarm.
- Ground fault alarm.
- High rate interlock.

### Control options

- Remote forced floating charge.
- Remote room fan control.
- Remote high rate charge.
- Monitoring and management software.

### Mechanical

- Protection up to NEMA 3R.
- Vermin proof.
- Special cable marking (both ends).
- Cabinet heater / Internal lamp.
- Special color.
- Ventilation n+1 or 100% redundant.

## Batteries

Borri has over 80 years of experience in designing and supplying AC and DC UPS systems with batteries.

With our vast experience in battery technologies and our close technical and commercial relationships with the world largest manufacturers of Nickel Cadmium, Lead Acid and Lithium ion Industrial batteries we are able to offer expert advice on the specifying, selection, operation and testing of batteries to best suite your application and needs.

## Service

Customer's expectation defines Borri's priority from the early analysis of the project requirements to a worldwide commissioning and service.

Many thousands of systems have been successfully installed and maintained globally; with continuous support from a highly trained team of expert, certified technicians and engineers.

From the professional set-up of Borri's training center or on site, the training and service team provide support and tailored training at Borri or at your site. You can be assured of Borri support to the highest standards no matter where in the world you are.

- Planning, installation, commissioning
- Maintenance and Service
- Analytical testing
- Battery tests
- Spare parts
- Training

## Who we are

Borri Group is a global provider of power electronics systems and solutions for harsh industrial and demanding commercial and ICT secure power requirements merging over eighty years of experience in developing, manufacturing and supplying uninterruptible power systems and solutions.

The Research and Development Team's expertise combines AC and DC power technologies spanning the worlds of both conventional and renewable energy, to provide innovative solutions for tomorrows problems.

The company is comprised of three business units: Industrial Power, Critical Power and Renewable Power, headquartered in Bibbiena, Italy. Borri's latest products, based on Green Conversion operation, guarantee the best PUE for green data centers: proof of the ongoing company commitment to innovation.

Thanks to its highly skilled custom engineers Borri controls in-house the entire process: from feed studies to design, production and after-sales service guaranteeing state-of-the-art solutions.

Based in Italy with over 20,000 m<sup>2</sup> production area and a large high power test field, Borri can depend on its more than 80 years of experience and multidisciplinary research and development to serve our customers best.



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