Gutor SDC
rectifier/battery charger

24 – 220 V; 25 – 1,200 A
Higher ratings upon request
## Gutor® SDC technical data

### Rectifier input

<table>
<thead>
<tr>
<th>Voltage</th>
<th>3 x 190/208/220/240/380/400/415/440/460/480/500/525/660/690 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input voltage tolerance</td>
<td>DC in tolerance: +/- 10% For function: +15%/-25%</td>
</tr>
<tr>
<td>Frequency</td>
<td>50/60 Hz +/- 8%</td>
</tr>
<tr>
<td>Power factor for a 6-puls rectifier</td>
<td>At nominal line power and float voltage: ~ 0.83 At -10% line power and float voltage: ~ 0.90 At +10% line power and float voltage: ~ 0.75</td>
</tr>
<tr>
<td>DC output</td>
<td>24/48/110/125/220 VDC</td>
</tr>
<tr>
<td>Setting range</td>
<td>100 – 120%</td>
</tr>
<tr>
<td>Float voltage at -10% line power voltage</td>
<td>100 – 130%</td>
</tr>
<tr>
<td>Float voltage at +10% line power voltage</td>
<td>100 – 130%</td>
</tr>
<tr>
<td>Boost voltage at nominal line power voltage</td>
<td>150%</td>
</tr>
<tr>
<td>Battery operating range</td>
<td>100 – 130%</td>
</tr>
<tr>
<td>DC voltage tolerance</td>
<td>+/- 1%</td>
</tr>
<tr>
<td>Dynamic behavior</td>
<td>maximum +/- 10% Vrms</td>
</tr>
<tr>
<td>10 –100% and 100 –10% load step</td>
<td>&lt;100 ms +/- 2%</td>
</tr>
<tr>
<td>Regulation time</td>
<td>with battery capacity of 3x nominal current: ≤ 1% rms without battery: ≤ 2% rms optional without battery: ≤ 1% rms</td>
</tr>
<tr>
<td>DC ripple voltage</td>
<td>≤ 1% rms</td>
</tr>
<tr>
<td>DC current tolerance</td>
<td>+/- 2%</td>
</tr>
<tr>
<td>Characteristic</td>
<td>I-U according to DIN 41773</td>
</tr>
<tr>
<td>DC overcurrent capability</td>
<td>150 – 200% for 2s</td>
</tr>
</tbody>
</table>

### General data

| Ambient temperature range for storage | from -20 to +70 °C from -4 to +158 °F |
| Ambient temperature range for operation | from -10 to +55 °C from 14 to +131 °F |
| Altitude above sea level | 1000 m without load de-rating 3,280 ft without load de-rating |
| Allowable air humidity | <95% (non condensing) |
| Noise level standard n+1 fan system | 55 – 65 dBA |
| Degree of protection | IP20 according to IEC 60529 |
| Paint | pearl light gray, RAL 9022 structure |
| Conformity | CE-Label |
| Efficiency | up to 94% depending on type |
| Cooling | Natural convection up to 100 A/220 V Force air ventilation with redundant, monitored fans |
| Seismic | up to 1.0 g |
Gutor SDC specifications

Typical single-line drawing

![Single-line diagram](image)

Battery voltage, output voltage, and current ratings

<table>
<thead>
<tr>
<th>Output voltage (VDC)</th>
<th>24</th>
<th>48</th>
<th>110</th>
<th>125</th>
<th>220</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC output current (A)</td>
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<tr>
<td>200</td>
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<td>250</td>
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<td>315</td>
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<td>800</td>
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</tbody>
</table>

Standard configuration

- Single system
- Rectifier input voltage — 3 x 400 V +/-10%
- Rectifier input frequency — 50 Hz +/- 8%
- Ripple filter — ≤ 2% rms without battery
- 6-pulse rectifier with isolation transformer
- Rectifier input switch
- Fixed charging voltage IU characteristic
- Human-machine interface
- External connection board
- Common alarm 2 x NO/NC
- Charger failure NO/NC
- Remote ON/OFF
- Emergency stop (internal or external power supply)
- Input to activate boost charge
- Input to activate initial charge
- Input to inhibit boost and initial charge
- Connection for battery temperature sensor
- Input for signaling battery fuse/MCCB
- Connection for remote display
- RS-232 interface (event log download)
- Battery capacity test (full discharge with current load)
- DC ground fault alarm
- Bottom cable entry
- Ground terminal
- N+1 monitored two-speed fans (above 100 A)
- Ambient temperature range from -10 to +40 °C
- Battery MCCB in rectifier
Options

System
- Parallel redundant configuration with load sharing
- DC distribution
- Earth-fault monitoring
- Voltage dropper
- Input harmonic filter

Rectifier
- Rectifier input/output isolator/circuit breaker
- 12-pulse rectifier with isolation transformer
- Ripple filter
- Blocking diode

Battery
- Battery circuit protection box (MCCB/fuse)
- Battery circuit protection in rectifier
- Low-voltage disconnect
- Battery management system
- Temperature sensor for temperature compensated battery charging
- Battery monitor (programmable battery data)
- Battery asymmetry supervision

Indication and alarms
- Charger ON
- 4 x customizable options
- Boost charge ON
- Fan failure
- Input power failure
- DC current overload
- DC out of tolerance
- Internal PSU fault
- Battery discharged
- DC earth fault
- Battery disconnected
- Overtemperature
- DC fuse blown
- Battery operation

Communication interfaces
- Front-panel analog meter
- Transducer
- Relay board, 16 fail-safe NO/NC contacts
- Network management card for Web browser-based monitoring, modbus RTU, modbus TCP/IP
- Modbus protocol on RS-485 or TCP/IP
- IEC 61850 protocol on RJ-45 and/or fiber optic connector
- Profibus® on RS-485
- External time synchronization

Mechanical
- Top cable entry
- Protection up to IP52
- Air filters at air inlet
- 100% redundant ventilation
- Seismic design
- Space heaters
- Panel lighting
- Cabinet color as required
- Ambient temperature maximum +55 °C
- Allowable altitude up to 4,000 m above sea level

Additional options are available upon request.
Human-machine interface (front panel)

The front panel includes a comprehensive and flexible human-machine interface. It is divided into four sections:

1. The system panel shows the current state of operation and how power is being routed through the system to the load.
2. The operations panel is used to turn the system on and off. The Lamp Test button indicates whether all LED indication lights on the front panel are functioning properly.
3. The keypad is used to view system measurements and interact with the system.
4. The alarm & indication panel displays possible faults and alarms.

Operational parameters
- Selectable second display language
- Auto start
- Charge mode (float/boost/initial)
- Auto boost (equalize) charge
- Battery capacity test
- Advanced battery monitor test (optional)
- Set date/time

Indication and measurements
- Operating mode (float/boost/initial)
- DC total current
- Battery voltage and current
- AC rectifier input voltage and current
- Battery temperature (with optional sensor)
- Battery backup time remaining (optional with string type battery monitor)
- Event log with date/time (operating mode changes and alarms)
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