

# Gutor SDC rectifier/battery charger

Designed for North American Market

24 – 220 V; 25 – 1,200 A  
Higher ratings upon request

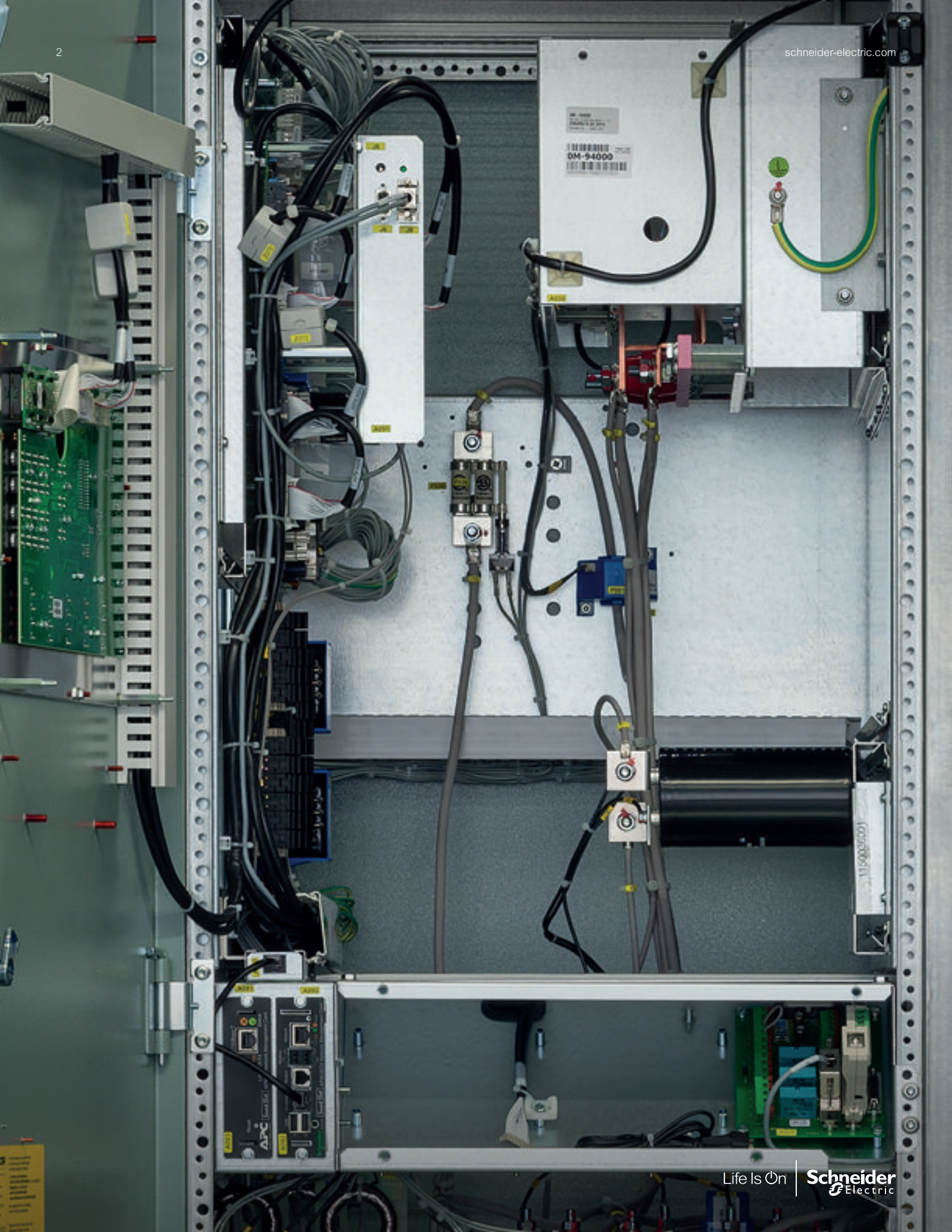


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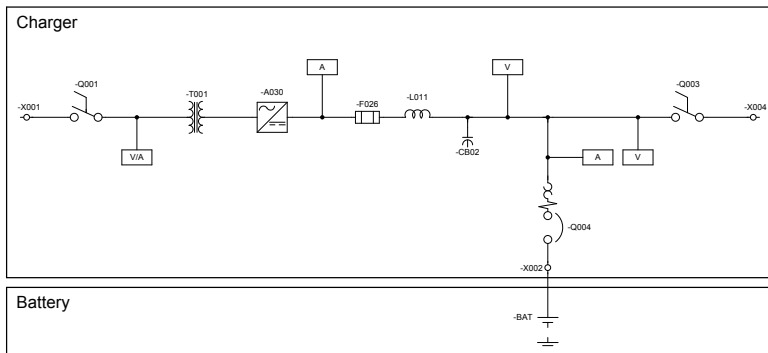
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| Gutor™ SDC technical data                    |                                                                                                                          |                                 |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| Rectifier input                              |                                                                                                                          |                                 |
| Voltage                                      | 3 x 208/480/600 V (other voltage upon request)                                                                           |                                 |
| Input voltage tolerance                      | +/- 10%                                                                                                                  |                                 |
| DC in tolerance                              | +15%/-25%                                                                                                                |                                 |
| For function                                 |                                                                                                                          |                                 |
| Frequency                                    | 60 Hz +/- 8% (50 Hz available upon request)                                                                              |                                 |
| Power factor for a 6-puls rectifier          |                                                                                                                          |                                 |
| 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                                                                                                                   |                                 |
| DC output                                    |                                                                                                                          |                                 |
| Voltage                                      | 24/48/110/125/220/250 VDC                                                                                                |                                 |
| Setting range                                |                                                                                                                          |                                 |
| Float voltage at -10/+10% line power voltage | 100 – 120%                                                                                                               |                                 |
| Float voltage at 0/+10% line power voltage   | 100 – 130%                                                                                                               |                                 |
| Boost voltage at nominal line power voltage  | 100 – 130%                                                                                                               |                                 |
| Battery operating range                      | 150%                                                                                                                     |                                 |
| DC voltage tolerance                         | +/- 1%                                                                                                                   |                                 |
| Dynamic behavior                             |                                                                                                                          |                                 |
| 10 –100% and 100 –10% load step              | maximum +/- 10% Vrms                                                                                                     |                                 |
| Regulation time                              | <100 ms +/- 2%                                                                                                           |                                 |
| DC ripple voltage                            | with battery capacity of 3x nominal current: ≤ 1% rms<br>without battery: ≤ 2% rms<br>optional without battery: ≤ 1% rms |                                 |
| DC current tolerance                         | +/- 2%                                                                                                                   |                                 |
| Characteristic                               | I-U according to DIN 41773                                                                                               |                                 |
| DC overcurrent capability                    | 150 – 200% for 2s                                                                                                        |                                 |
| 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                         | NEMA 1 (IP20)                                                                                                            |                                 |
| Paint                                        | pearl light gray, RAL 9022 cabinet                                                                                       |                                 |
| Standards                                    |                                                                                                                          |                                 |
| Safety                                       | UL 1778 / CSA 22.2-107.3                                                                                                 |                                 |
| EMC                                          | FCC Part 15 Subpart B, Class A                                                                                           |                                 |
| Performance                                  | Nema PE-1                                                                                                                |                                 |
| Conformity                                   | CE-Label                                                                                                                 |                                 |
| Efficiency                                   | up to 94% depending on type                                                                                              |                                 |
| Cooling                                      | Natural convection up to 100 A/220 V<br>Force air ventilation with redundant, monitored fans                             |                                 |
| Seismic                                      | up to 1.0 g                                                                                                              |                                 |

# Gutor SDC specifications

## Typical single-line drawing



## Battery voltage, output voltage, and current ratings

| Output voltage (VDC)  | 24    | 48    | 110   | 125   | 220   |
|-----------------------|-------|-------|-------|-------|-------|
| DC output current (A) | -     | -     | -     | -     | 25    |
|                       | -     | -     | 50    | 50    | 50    |
|                       | -     | 100   | 100   | 100   | 100   |
|                       | -     | 125   | 125   | 125   | 125   |
|                       | -     | 160   | 160   | 160   | 160   |
|                       | 200   | 200   | 200   | 200   | 200   |
|                       | 250   | 250   | 250   | 250   | 250   |
|                       | 315   | 315   | 315   | 315   | 315   |
|                       | 400   | 400   | 400   | 400   | 400   |
|                       | 500   | 500   | 500   | 500   | 500   |
|                       | 630   | 630   | 630   | 630   | 630   |
|                       | 800   | 800   | 800   | 800   | 800   |
|                       | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 |
|                       | 1,200 | 1,200 | 1,200 | 1,200 | 1,200 |

## Standard configuration

- Single system
- Rectifier input voltage — 3 x 480 V +/- 10%
- Rectifier input frequency — 60 Hz +/- 8%
- Ripple filter — ≤2% rms without battery
- 6-pulse rectifier with isolation transformer
- Rectifier input breaker
- 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 +14 to +104 °F
- 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<sup>®</sup> on RS-485
- External time synchronization

### Mechanical

- Top cable entry
- NEMA 12 per NEMA 250-1991 (IP52)
- Air filters at air inlet
- 100% redundant ventilation
- Seismic design
- Space heaters
- Panel lighting
- Cabinet color as required
- Ambient temperature maximum +131 °F
- Allowable altitude up to 13,123 ft (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)



# Gutor SDC



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