



GUTOR SDC RECTIFIER / BATTERY CHARGER

Industrial DC power supply system with galvanic isolation.

Fully compliant with IEC standards.

Gutor SDC is an industrial battery charger and DC power supply system with a thyristor controlled rectifier designed to secure critical industrial applications in harsh environments.



Designed for Harsh Environments

- Transformer base provides full galvanic isolation to prevent electric shock and suppress harmful electrical noise.
- Robust industrial enclosure up to IP42 / NEMA 2*.
- Seismic design for peak spectral acceleration up to 1.0 g*.
- Operation temperature up to 55°C.
- Printed circuit boards have conformal coating to protect against moisture, dust, chemicals, and extreme temperatures.
- Tinned copper bars for harsh environments are available as an option.

*Higher options available upon request

Adaptable and qualified design

- Extensive range of input and output voltage.
- The rectifier is sized to simultaneously supply 100% load and boost charge the battery.

Highest reliability

- High Mean Time Between Failures (MTBF).
- Longer product lifespan, with minimal servicing required.
- Parallel or redundant capabilities to increase availability.
- Controller firmware and hardware are compliant with IEC 60880 for NPP (Nuclear Power Plant) applications.
- Independent System Surveillance (ISS) provides health supervision of all critical components to prevent the system from freezing and shutting down.



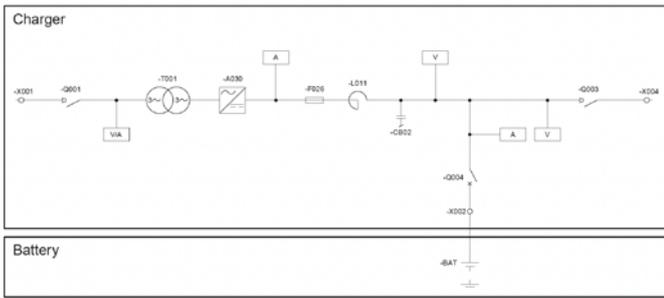
Internal view of a SDC single configuration system.

Gutor SDC Technical Data

Rectifier input		
Voltage (three-phase)	380 / 400 / 415 / 480 / 600 / 690 (and others)	
Input voltage tolerance		
DC in tolerance	+/- 10%	
For function	+15%/-25%	
Frequency	50/60 Hz +/- 8%	
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 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 without battery: ≤ 2% rms 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		
	IEC	UL
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	1,000 m without load de-rating from	3,280 ft without load de-rating
Allowable air humidity	<95% (non-condensing)	
Noise level standard n+1 fan system	60 – 75 dBA	
Degree of protection	IP20 according to IEC® 60529	
Paint	pearl light gray, RAL 9022 light gray, RAL 7035 structure	
Standards		
Safety	IEC/EN 62040-1-2	UL1778 / CSA 22.2-107.3
EMC	IEC 62040-2, EN 50091-2	FCC Part 15 Subpart B, Class A
Performance	IEC/EN 62040-3, IEC 60146-1-1	NEMA PE-1
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	

Highly-customizable design and flexible configuration

Typical single-line drawing



Basic configuration

- Single system
- 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 NO/NC
- 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 to 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 ranges from -10 to +40 °C
- Battery MCCB in rectifier

Battery voltage, output voltage, and current ratings

Voltage (VDC)	24	48	110	125	220
UPS ratings (kVA)	-	-	-	-	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
1000	1000	1000	1000	1000	
1200	1200	1200	1200	1200	

Higher ratings and other voltages on request – single-phase

Options

System

- Parallel redundant configuration with load sharing
- DC distribution
- Earth-fault monitoring
- Voltage dropper
- DC/DC converter
- 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

Communication interfaces

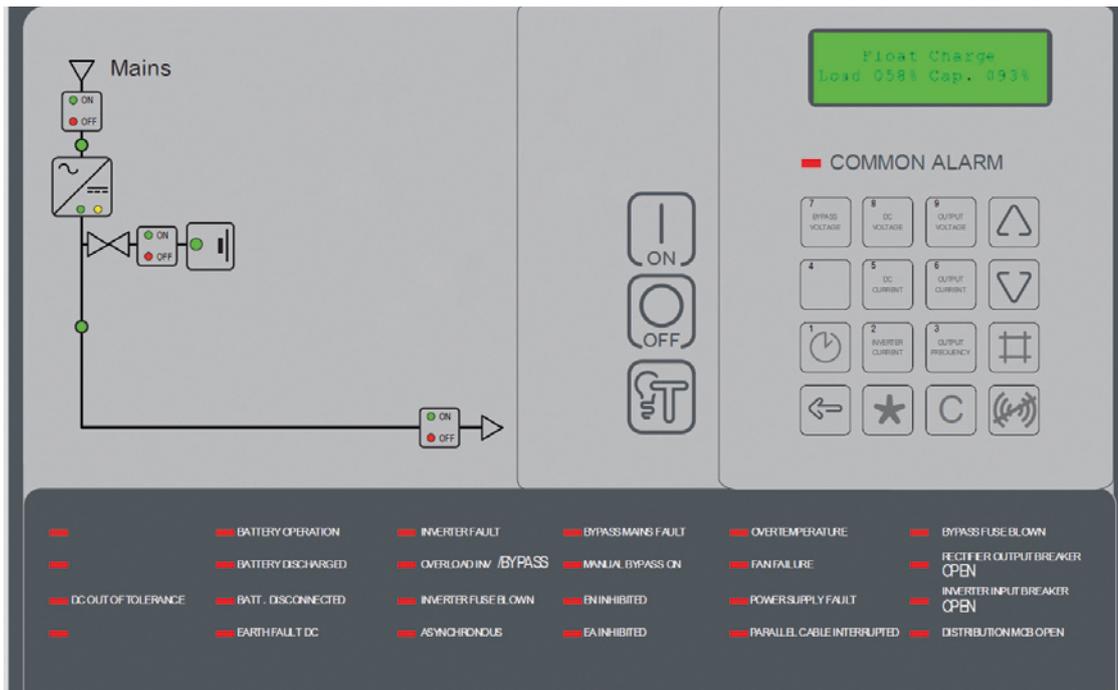
- Front-panel analog meter
- Transducer
- Relay board, 16 fail-safe NO/NC contacts
- Network management card for web browser-based monitoring, modbus RTU and modbus TCP/IP
- Modbus protocol on RS-485 or TCP/IP
- IEC 61850 protocol on RJ-45 and/or fiber optic connector
- Profibus® on RS-485
- External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

Mechanical

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



Human-machine interface



Operational parameters

- Option to choose a secondary display language
- Auto-start
- Charge mode (float/boost/initial)
- Auto-boost (equalize) charge
- Battery capacity test
- Advanced battery monitor test (optional)
- Set date/time

System 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)

System alarms

- 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