

GALAXY Switchmode Rectifier 595LTS2 Series

Model 595LTA: $-48 V_{dc}$, $220 A_{dc}$, $380/400/480 V_{ac}$

Model 595LTB: $-48 V_{dc}$, $220 A_{dc}$, $208/220/240 V_{ac}$



Description

The new GALAXY Switchmode Rectifier 595LT Series provides highest quality dc power for telecommunications and data processing systems and their batteries.

The **Switchmode Rectifier 595LT Series** integrates the latest switchmode technology with superior power, protection, and control features in a compact, cost-efficient power-conversion system.

Designed as a key element in the ABB Power GALAXY Power System 4848/100 Battery Plant, the 595LT Series Rectifier converts ac input voltage into the dc voltage level required to power end-user equipment. It also provides precise regulation, which is required to maximize battery life.

In addition, the rectifier can be used to form or recharge batteries.

Benefits

Compact, Power-Packed

ABB Power's revolutionary technology packs ever-greater power into ever-shrinking packages. The result is a rectifier that packs more power per cubic inch, weighs substantially less, requires minimal maintenance, and frees up valuable floor space.

Optimum Power Usage

Functionally, the first conversion stage incorporates a new, high-efficiency, low THD topology with low-loss switching to generate a high-voltage intermediate bus from a three-wire, three-phase input ac source. This technology enables direct conversion of voltages up to $480 V_{ac}$ nominal. The bus transfers power to the switching bridge, dc-dc second stage.

Quick Setup

The rectifier weighs approximately 50.5 lb (22.9 kg) and is designed to plug into a factory-wired cabinet. Installation is swift and straightforward. Interconnections to ac input, dc output, and control signals are automatic during insertion. No adjustments or settings are necessary.

Economical Operation

The system exhibits excellent 95% efficiency contributing to lower ac usage and operating costs.

Extended Service Life

The 595LT Series features parallel operation with digital load sharing, which evenly balances the load current among multiple rectifiers.

Fail-Safe Performance

To prevent load or rectifier damage, the 595LT Series is equipped with overvoltage/overcurrent protection. Two levels of high-voltage shutdown are provided, each powered from a separate voltage source. Two levels of overcurrent protection are also provided. The rectifier's control circuitry limits the current and an output circuit breaker prevents excessive output current.

An intelligent fan-speed control maintains safe operation at ambient temperatures from $0^{\circ}C$ to $50^{\circ}C$. The variable-speed control also minimizes acoustic noise.

Simplified Control/Monitoring

A digital meter indicates current, temperature, or rectifier alarm messages for convenient system status. A microprocessor manages all internal alarm and state decisions. Additional monitoring and

Benefits (continued)

control capabilities are provided through serial digital communication with the GALAXY family of controllers.

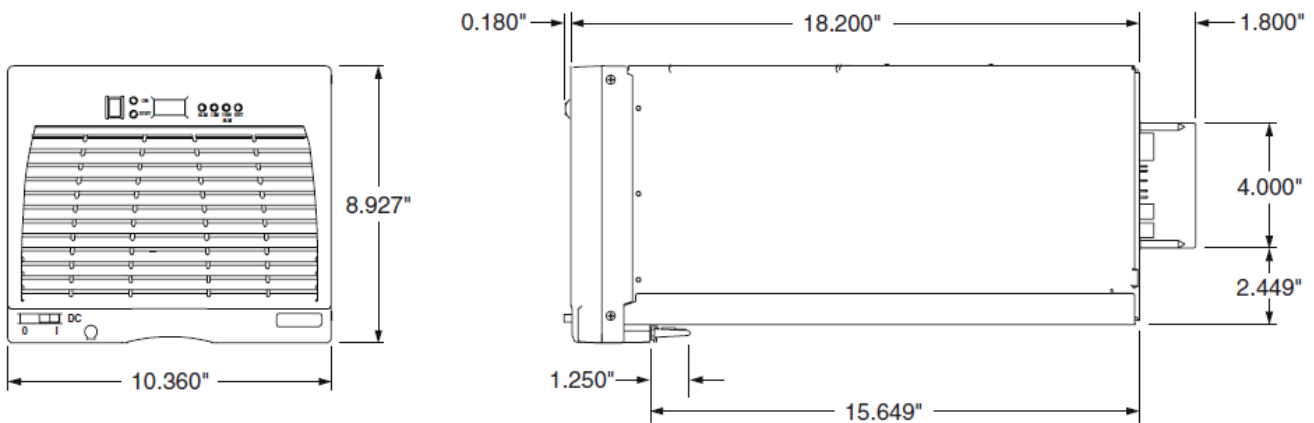
Overall, the unit is easy to install and delivers the reliable high performance required by the most stringent telecommunication and data processing applications.

Features

- High power density
- High efficiency
- Low THD
- Wide ac input range
- Plug-in interface
- Digital load sharing

Technical Specifications

Outline Drawing



GALAXY Switchmode Rectifier 595 Series

Technical Specifications

Specifications

Electrical

Input

Nominal Voltage, Three-Phase:	
595LTA	380 V _{ac} /400 V _{ac} /480 V _{ac} , 3-wire plus ground
595LTB	208 V _{ac} /220 V _{ac} /240 V _{ac} , 3-wire plus ground

Voltage Limit, Steady State:	
595LTA	320 V _{ac} to 530 V _{ac}
595LTB	176 V _{ac} to 275 V _{ac}

Frequency	47 Hz to 63 Hz
Power Factor	>0.99 at 50% to 100% load
Total Harmonic Distortion	<5% at 50% to 100% load

Output

Float/Boost Voltage	42 V _{dc} to 58 V _{dc}
Regulation (with GALAXY controller)	±0.5%
Ripple	100 mV _{rms}
Noise	<2 mV psophometric typ LTA <12mV LTB
Current-Limit Set Point	60 A _{dc} to 220 A _{dc}

Environmental

Efficiency	>95% typical at 100 A _{dc} -220 A _{dc} output current
Operating Temperature	0°C to 50°C (32°F to 122°F)
Operating Relative Humidity	5% to 90% (noncondensing)
Storage Temperature	-40°C to +85°C (-40°F to 185°F)
Storage Relative Humidity	5% to 90%
Audible Noise	65 dBA at room temperature, mounted in cabinet

Technical Specifications (continued)

Specifications (continued)

Safety/Standards Compliance

NEBS	Evaluated by independent test lab with NRTL status to Telcordia GR63 and GR1089 (including level 3 testing)
Safety	UL ¹ -recognized (US and Canada) and TÜV ² UL1950, EN62368/IEC950, and CSA ³ 234/950 (tested for SELV output)
Electromagnetic Compliance ⁴ : Emission	IEC/EN60032 (CISPR22) Radiated/Conducted Emission, Class B Meets FCC Part 15 Class B(LTA), (LTB meets Class A with 11 dB of margin) IEC/EN 61000-4-2 ESD level 3 and 4
Immunity	IEC/EN 61000-4-3 Radiated Immunity, 10 Vm IEC/EN 61000-4-4 Electrical Fast Transients/Burst, level 4 IEC/EN 61000-4-5 Lightning Surge, level 4
CE Marking ⁵	CE marked per European Union Council Directives: Low-Voltage Directive (73/23/EEC) as amended by CE Marking Directive (93/68/EEC)

¹UL is a registered trademark of Underwriters Laboratories, Inc.

²TÜV is a registered trademark of Technischer Überwachungs-Verein.

³CSA is a registered trademark of Canadian Standards Association.

⁴Testing to the EMC standards was performed on an individual unit for verification purpose only.

⁵This product is intended for integration into end-user equipment. All required procedures for CE Marking of end-user equipment should be followed.

Physical

Width	10.4 in. (265 mm) rear of unit
Height	8.9 in. (230 mm) rear of unit
Depth	18.2 in. (470 mm) overall, less contactor
Weight	33.5 lb (15.2 kg) LTA, 36.5 lb (16.6 kg) LTB

Control and Monitoring

Visual Indicators (Six)	ON (green), STBY (yellow), BST (yellow), LIM (yellow), ALM (red), FAN ALM (red)
Meter	Three digit: current, rectifier ID
Control Switch (One)	ID/ON/STBY
Serial Interface Signaling: Controller-to-Rectifier	Remote sense, load share, voltage set points, current set points, selective HVSD set points, float/boost/equalize mode, HVSD, ON/STBY, lamp test
Serial Interface Signaling: Rectifier-to-Controller	Rectifier current, rectifier temperature, ID, serial number, manufacturing information, RFA, CB, ON/STBY, ACF, phase fail, TA, fan fail

Note: STBY = standby, LIM = limit, ALM = alarm, HVSD = high-voltage shutdown, RFA = rectifier fail alarm, CB = circuit breaker, ACF = ac failure, TA = ambient temperature, BST = boost

Technical Specifications (continued)

Ordering Information

Description	Ordering Code
595LTA Switchmode Rectifier	108979238
595LTB Switchmode Rectifier	108990405

Note: For complete ordering information, please contact your ABB Power sales representative

Related Product Literature

Document Title	Document Number
GALAXY Power System (GPS) 4848/100	DS03-044

Contact Us

For more information, call us at

+1-877-546-3243 (US)

+1-972-244-9288 (Int'l)

Technical Specifications (continued)

Change History (excludes grammar & clarifications)

Version	Date	Description of the change
7.3	01-04-2022	Updated as per template upgraded RoHS standards



ABB

601 Shiloh Rd.
Plano, TX USA

abbpowerconversion.com

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