BENNING

World Class Power Solutions

Rectifier
TEBECHOP 3000 HD

48 V / 56 A (67 A)

Features

- **High power density of 965 W/L (15,8 W/inch^3)**
- **Hot swapable 3000 W**
- **Ease of expansion**
- **Field replaceable fan**

TEBECHOP 3000 HD

The 3000 HD rectifiers offers extremly reliable, redundant systeme performance. This new generation of rectifiers features high efficiency operation across all load levels for superior performance and lower operating costs.
The 3000 HD rectifier supports the constant-power characteristics typical of todays telecom loads resulting in a reduced number of rectifier modules and higher output current during the battery recharge cycle.

TEBECHOP 3000 HD
Technical Data

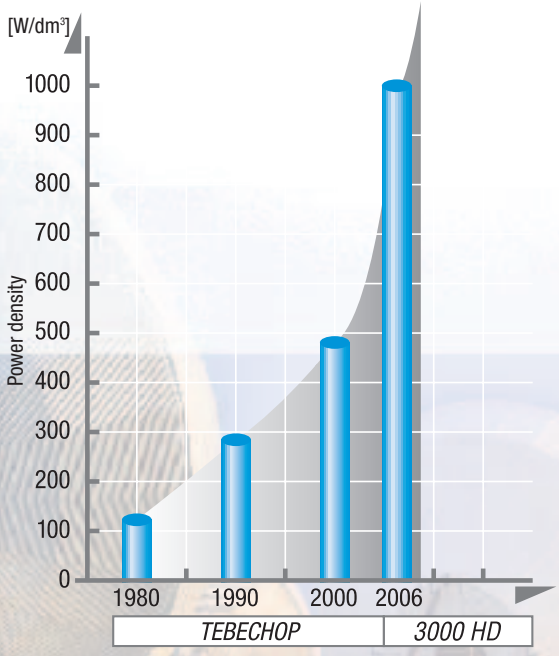
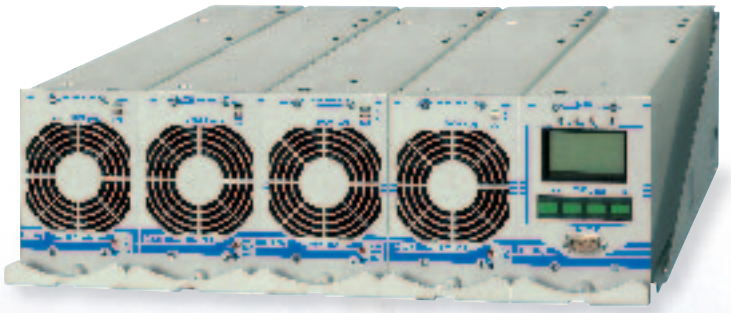


Fig.: Power density of single phase 48 V telecom rectifiers over the last decades.



TEBECHOP 3000 HD

The TEBECHOP 3000 HD rectifier system combines a compact modular rectifier design with intelligent power features, state-of-the-art technology and load distribution. The result is the 3000 HD rectifier shelf, which offers advanced features making it a perfect choice for data, telecom and outdoor cabinet applications. The 3000 HD is capable of providing – 48 V DC power with a load range of 3 kW to 72 kW.

Five plugin rectifier modules can be equipped in a 19" shelf. The height of the rectifier shelf is 3 U and each module has a power constant output of 3000 W at – 48 V. The system can be scaled operate as a single bulk output shelf or up to twenty-four rectifiers can be connected in parallel by adding additional rectifier shelves. To do this, load distribution units can be added which contain load distribution circuit breakers, battery and/or load disconnects, alarm and display functions for local/remote monitoring and control.

Input	
Voltage	85 – 265 V AC 1-ph
Current	15 A at nominal line and load, (17,5 A max.)
Frequency	47 – 63 Hz
Power Factor	0,99 at nominal load
Efficiency	≥ 0,91
Inrush current	< nominal
Recommended input Fuse	25 A gl/m.c.b. B-characteristic
Power derating	175 V - 2700 W, 85 V - 1080 W

Output Voltage	
Nominal voltage	48 V
Nominal current	56 A
Boost charge voltage (L)	57,6 V (2,4 V/C)
Float charge voltage (EL)	54 V (2,25 V/C)
Direct feed	50 V
Battery test mode	43,2 V (1,8 V/C)
Adjustment range	40 – 60 V
Voltage regulation	± 1%
Output Current	52 A at 57,6 V (2,4 V/C) boost 56 A at 54 V (2,25 V/C) float 56 A at 50 V, 56 A at 43,2 V (1,8 V/C) 67 A in IPU Power constant (only in boost/float mode) with Battery
Characteristic	IU or IPU
Noise Boltage	< 2mV psophometric weighted ≥ 52,8 dBm or < 35 dBnc CCITT 0,41 with A-Filter, without Battery
Ripple	< 1 % ss, 30 mV RMS, 10 KHz to 100 MHz
Parallel operation	max 24 Modules, Load sharing < ± 5%, at > 20 % load

Generic data	
Protection	IP 20
Mechanical dimensions (HxWxD)	3 U (133 mm) x 1/5 19" (86,6 mm) x 11,8" (300 mm)
Cooling	Forced cooling. Fan speed controlled.
Operating temperature	-33 °C to +70 °C. Derating 2,5 %/°C, > 55 °C and at > 70 °C the rectifier will be switched off.
Humidity	0 to 90 % non condensing
Storage temperature	-40 to +85 °C
Operation altitude	1000 m. Derating 10 %/1000 m, >1000 m above sea level
Connection	Plug, mounted on back of rectifier
Connection to rack	via Backplane
Dynamic regulation	< ±4 % deviation of voltage, < 2 ms recovery time for load change 10 % – 90 % – 10 %
I- Socket	I - nominal = 5 V Socket size - 2 mm
Power density	965 W/L or 15,8 W/inch^3
Weight	2,9 kg
EMI	EN55022 class B
Electrical safety	IEC950/EN60950/UL1950
Acoustics	< 58 dB (A). Sound pressure level 1 meter
LED indications (Multi function) Operation – Green Initial operation (without mains) – Green and Red (continuous) Output over voltage – Red flashes 3 times (xxx xxx) Rectifier failure – Red (continuous) Fan fault – Green on and Red flashes twice (xx xx) High temperature – Red flashes twice (xx xx) Output fuse failure (internal) – Red flashes once (x x) Mains failure – Green and Red flash together	
External function • Remote ON/OFF through external switch (option) • Voltage and charger mode adjustment (Service program) via RS485	
MTBF	> 120000 hours according to MIL-HDBK-217-F
Other standards EMC EN 61000-4-2, level 3. Discharge (ESD) EN 61000-4-3, level 3. RF-Field 10V/m EN 61000-4-4, level 3. @ 5kHz 2KV Fast Transient EN 61000-4-5, level 3.Surge Line to Line 2KV EN 61000-3-3 Voltage Fluct. & Flicker EN 61000-3-2 Harmonic current	

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