



GAMATRONIC™

Our Power Your Confidence

MODULAR DC POWER SUPPLIES & SYSTEMS

*DC Power Systems
DC/AC Inverters
Static Switches
DC/DC Converters*

Power PS system 1UDC+

The Gamatronic 1UDC+ power system provides controlled and regulated dc power to sensitive equipment while simultaneously charging a battery bank. The system also supplies backup power during mains failure. Max system capacity is 2500A.

The 1UDC+ contains a 19" 1U subrack that houses up to 3 hot-plugged rectifiers, or 2 rectifiers + controller and an ELVD device.

Max system capacity: up to 13 subracks (38 rectifiers + controller), up to 2500A (48 Vdc).

Basic shelves:

1UDC+ **type 1**- includes a 19" 1U subrack with up to 3 rectifiers.

1UDC+ **type 2**- includes a 19" 3U with up to 2 rectifiers + SC 1UDC+ controller and an Electronic LVD device.

Features

- 96 % efficiency
- Each 1U shelf 48V/100A @ 33A modules (200 A @ 66 A modules)
- Digitally controlled intelligent power module
- One to three hotswap rectifiers per shelf
- Active current sharing among rectifiers
- Universal input voltage
- Built-in dual 70 A Electronic Low Voltage Disconnect device (ELVD) for battery protection
- Option to connect two external LVD contactors of up to 1600 A
- A high performance, hotswap system controller (SC1UDC+) to measure, monitor, and control voltages, current, battery, temperature and more.
- USB (SC1UDC+) or TCP/IP + USB communication (SC UDC+ NET) and Modbus.
- Advanced battery management
- Up to two battery sets handled in one system
- Automatic and preprogrammed battery test (for each battery string)
- Remote notification of system alarms (optional) Breaking alert by modem (optional)



PS1UDC+ SPECIFICATIONS

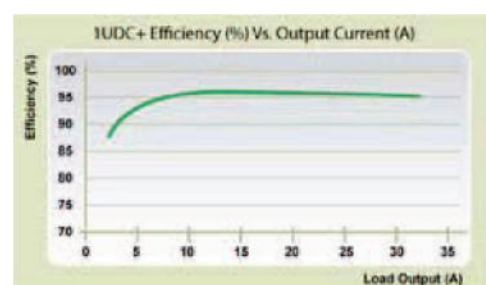


	1UDC 12 V / 40A	1UDC 24 V / 40A	1UDC 48 V / 33 A	1UDC 48 V / 66 A
AC INPUT				
Nominal voltage	230 Vac			
Voltage range	185 ~ 275 Vac full power; 85 ~ 300 Vac with derating			
Max. current ¹ (full load)	N*3 A	N*6 A	N*10 A	N*20 A
Frequency	47 ~ 63 Hz			
Power factor (full load)	≥0.99			
Protection	Input fuses; relay disconnects input @ >300 Vac			
DC OUTPUT				
Maximum configuration	38 rectifier modules + controller			
Maximum system output	1520 A, 13.5 V, 20.5 kW	1520 A, 27 V, 41 kW	1255 A, 54 V, 68 kW	2500 A, 54 V, 135 kW
Voltage (default)	13.5 ±0.1 Vdc	27 ±0.1 Vdc	54 ±0.2 Vdc	
Adjustable range (Vdc)	11.5 ~ 14.5 Vdc	23 ~ 29 Vdc	47 ~ 58 Vdc	
Regulation (line & load)	±0.5 %, ±0.25 % with controller			
Nominal current ¹	N*40 A	N*40 A (Vin>195 Vac) N*20 A (Vin=110 Vac)	N*33.3 A (Vin>195 Vac) N*16 A (Vin=110 Vac)	N*66 A (Vin>195 Vac) N*32 A (Vin=110 Vac)
Ripple & noise @ bw=30 MHz	150 mV p-p, 30 mV rms	150 mV p-p, 30 mV rms	200 mV p-p, 40 mV rms	
Psophometric noise	-52 dBm over 600 Ω (<2 mv)			
Efficiency (nominal load)	up to 91 % @230 Vac up to 90 % @115 Vac	up to 94 % @230 Vac up to 93 % @115 Vac	up to 96 % @230 Vac up to 95 % @115 Vac	up to 95.2 % @230 Vac up to 96 % @half load
Overload current ¹	N*42 A (Vin>200 Vac)	N*42 A (Vin>200 Vac)	N*35 A (Vin>200 Vac)	N*70 A (Vin>200 Vac)
Short circuit current, Vo=0	<N*20 A (Vin=230 Vac)			N*40 A (Vin>230 Vac)
Over-voltage protection	15 Vac	30 Vac	59.5 Vac	
Protection	Current limited; short-circuit proof; output fuse			
Walk-in time	10 s			
Hold-up time @ nom. input	20 ms (90% load, output decays to 11.5 V)	20 ms (90% load, output decays to 23 V)	20 ms (90% load, output decays to 46 V)	
Output current indication	Alphanumeric LCD on system controller; 4-LED bar graph on rectifier front panel			
Active current sharing	±10 % accuracy at full load			
GENERAL				
System controller ²	Full status monitoring and communication with a PC, dedicated GUI, USB, RJ45			
Withstand voltage (1 min) ³	3000 Vac input/output, 1500 Vac input/ground			
Ambient temp., operation	-10 ~ 70 °C, output derated above 50 °C by 5%/°C			-10 ~ 75 °C ⁴
Ambient temp., storage	-20 ~ 80 °C			
Humidity	<95 % non-condensing, equipped with standard PS1UDC+ rack			
EMC	ETSI, EN 300 386 V1.5.1 (2010-05), EN 55022 Class B, EN 61000-4-2/3/4/5/6/11, EN 61000-3-2, EN 61000-3-3			
Safety	IEC 60950			
Dimensions (subrack)	H=44 mm (1U), W=3x146 mm (19"), D=320 (w/o terminals), 360 (with terminals)			
Dimensions (1 module)	H=44 mm (1U), W=146 mm (19"), D=260 mm			H=44, W=146, D=330
Weight (subrack)	Empty subrack (2.6 kg) + 2 modules (2.8 kg) + controller (0.6 kg) = 6.0 kg			10 kg
Weight (1 module)	1.4 kg			2 kg
ELVD				
Max. withstand current	2x70 Adc or 1x120 Adc			

All specifications are typical and subject to change without prior notice.
 We have additional versions of this products with different power configurations.

Notes:

1. N=number of modules
2. The basic system includes a system controller and up to two rectifier modules.
3. Equivalent dc test voltage is applied to overcome Y-capacitors' leakage current to ground. Output is floating (not grounded) during test.
4. Output derated above 50 °C, by 4 % / °C



19" Subrack Options for the 1UDC+ Power System

Gamatronic's 2U subrack for the 1UDC+ power system holds 1 shelf.

The 2U subrack fits a standard 19" rack, and includes:

- Dc distribution panel
- 6 load circuit breakers
- Battery circuit breaker
- Choice of 10 A or 30 A breakers, or a mix of both.



Additional available items include:

- The rectifiers and controller modules
- Shelves for the modules
- ELVD

Gamatronic's 3U subrack for the 1UDC+ power system holds 2 shelves.

The 3U subrack fits a standard 19" rack, and includes:

- Dc distribution panel
- 6 load circuit breakers
- Battery circuit breaker
- Choice of 10 A or 30 A circuit breakers, or a mix of both.



Additional available items include:

- The rectifiers and controller modules
- Shelves for the modules
- ELVD

Dc/Ac Modular Inverter

The IPU 1000 employs high-frequency PWM technology and a microprocessor that controls all operations and diagnostics.

Features

- Up to 30 modules in parallel, up to 30kVA
- Employs high frequency PMW technology
- Microprocessor controls all diagnostics and operation
- Power density (2 kVA in 1U 19" shelf; 1 kVA in 1U 9.5" cabinet)
- Lightweight
- Standalone or parallel operation
- Parallel capability for N+1 redundancy
- High efficiency
- Continuous input DC current
- Optional: bypass (for standalone operation)



IPU1000 Technical Specifications

Power (kVA)	0.55 kVA	1 kVA
Topology	Dual high frequency conversion	
Control	Dual 8-bit RISC microcontroller	
Input		
Voltage	24 Vdc nominal (21~30 Vdc)	48 Vdc nominal (42~60 Vdc)
Current	36 A (max.)	20 A (max.)
Psophometric noise	<2 mV at full load	
Low voltage shutdown	21 ± 0.5 Vdc	42 ± 0.5 Vdc
Output		
Voltage	220/230 Vac	
Power	550 VA / 550 W	1000 VA / 700 W
Frequency	50/60 Hz ± 0.1 %	
Synchronization range	45~66 Hz	
Synchronization system	Digital PLL	
Waveform	Pure sine wave	
THD	1.5 % max. for linear load 4 % max. for nonlinear load	
Crest factor	3:1 max. for nonlinear load	
Voltage regulation (line & load)	±1 % (static)	
General		
Parallel configuration	Up to 30 units in parallel, active current sharing	
Efficiency	88 % @ 24 Vdc	90 % @ 48 Vdc
Isolation voltage	1500 Vac input-output 1500 Vac output-chassis 500 Vdc input-chassis	
Protection	Output over-voltage, output overload & short circuit (inherent by pulse-by-pulse), LVD (low input voltage disconnection), over-temperature	
Display	5 LEDs indicate load level and exceptional conditions	
LED indications	Status, ON, dc low voltage, overload	
Safety	IEC 950 (EN 60950)	
EMC (including shelf)	EN 300-386-2, EN 50082-1, EN 55022	
Audible noise	<50 dbA @1.5 m	
Temperature	-10 ~ +50 °C	-10 ~ +45 °C
Signalization	2 dry contacts (fault indication)	
Dimensions HxWxD (mm)	44 x 243 x 202	
Weight (without shelf)	1.5 kg	

All specifications are typical and subject to change without prior notice.

STSW Static Switch

Gamatronic STSW static switches provides an instantaneous load transfer from one power source to another, to ensure continuous operation of sensitive and critical electronic equipment. This considerably increases reliability of inverters and UPS systems.

Available in single-phase and three-phase models.

Features

- Automatic static switch increases ac output reliability and overload capability
- Instantaneous load transfer from inverter to bypass and vice versa
- Simple, userfriendly control panel : two control buttons, 7 LED indicators
- Audible alarm sounds when failure or switch to bypass is detected
- Protects load against illegal bypass voltages



STATIC SWITCH SPECIFICATIONS

	Single-phase (220/230 Vac)		Three-phase (3x380/3x400 Vac)
	With backfeed protection	Standard	
Type	Common neutral (neutral line in = neutral line out)		
Model name and Nominal power	STSW1BF-06, 6 kVA	STSW1-10, 10 kVA STSW1-15, 15 kVA	STSW3-10, 10 kVA STSW3-20, 20 kVA STSW3-30, 30 kVA
Input voltage range (phase-neutral, Vac)	187 ~ 242 or 197 ~ 253 (selectable)		
Input frequency range (Hz)	50 ±2, 50 ±4, 60 ±2, 60 ±4 (selectable)		
Transition time in synchronized mode (ms)	<3 ms		
Transition time in non-synchronized mode (ms)	<15 ms		
Indications and communication	6 LEDs, 3 buttons, audible alarm + dry contact relay, RS232 interface		
Efficiency (%)	99.9		
Dimensions (H, W, D, mm)	44 x 480 x 252 (19", 1U)	135 x 480 x 210 (19", 3U)	Customized
Weight (kg)	4	5	up to 15
Connections	Terminals		
Safety	Complies with IEC 950 (EN 60950)		

All specifications are typical and subject to change without prior notice.

1UDC+ Dc-Dc Converters

Experience the power of precision.

The 1UDC dc-to-dc converter module converts a nominal 48 V (42 V to 59 V) or 24 Vdc (21.5 V to 29 V) into a precise 12 or 24 or 48 V output.

Multiple 1UDC modules can also be operated in a parallel, active current sharing configuration for greater output power and to provide N+1 redundancy.



Features

- Compatible with 1U power supplies
- Accommodates a range of system configurations
- Two voltage converters with different output voltages (48 Vdc or 24 Vdc) can be used
- Controllable via 1UDC controller
- Connect multiple converters in parallel for redundancy and higher output

These dc-dc converter modules convert a nominal 48 V (42 V ~ 59 V) or 24 V (21.5 V – 29 V) into a precise 12 or 24 or 48 V output.

Multiple 1UDC modules can also be operated in a parallel configuration with active current sharing for greater output power and to provide N+1 redundancy.

Dc-Dc converters: technical specifications

Input-output (Vdc)	48-24	48-12	24-48	24-12
Input				
Voltage range (Vdc)	49 ~ 59		20.5 ~ 29	
Max. current (A)	17	10.5	30	20
Efficiency @ 50 % load (%)	>88		>85	
Protection	input OVP; reversed polarity connection			
Low voltage protection	Stops at Vin < 41 Vdc		Stops at Vin < 20	
Restart operation	Automatic at Vin > 46		Automatic at Vin > 23	
Output				
Voltage (Vdc)	24	12	48	12
Power (W)	600	300	500	300
Current limit (A)	25 A, folds back to 9 A at short circuit	25 A, folds back to 12 A at short circuit	10.5 A, folds back to 5 A at short circuit	25, folds back to 12 A at short circuit
Voltage adjustment (Vdc)	21.5 ~ 26.5	12 ~ 14	44 ~ 54	12 ~ 14
Voltage regulation (%)	±1			
Ripple (mVrms)	50			
Protection	Short circuit, overload, output OVP, over-temperature			
Display	4 LED bar graph displays load level; overload, ON			
Parallel operation	10 % accuracy with active current sharing			
General				
Ambient temperature (°C)	-10 ~ 50			
Humidity (%)	95, non-condensing			
Dimensions (mm)	H = 44, W = 146, D = 260			
Weight (kg)	0.8			
Withstand voltage (Vdc)	Input – output: 1500 Input – chassis: 1500 Output – chassis: 1500			
Cooling	Forced air, fan speed control			
Safety	IEC 950, EN 60950			
EMC	EN 55022, EN 61000-4-2/3/4/5/6/11, EN 61000-3-2, EN 61000-3-3			

All specifications are typical and subject to change without prior notice.
 Additional voltages and power ranges are available in this family of products.



GAMATRONIC™

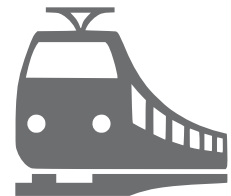
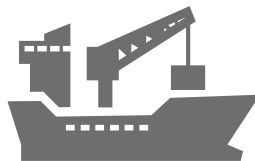
Our Power Your Confidence



GAMATRONIC™

Just like our wide range of products, we are available worldwide, with direct representation in: The UK, China, Brazil, South Africa and partners throughout the world.

*Choose **GAMATRONIC** - our power, your confidence*



GAMATRONIC ELECTRONIC INDUSTRIES LTD.

17 Hartom St, POB 45029,
Jerusalem 9777517
Israel Tel: +972-2-5888222
Fax: +972-2-5828875
info@gamatronic.com
www.gamatronic.com

GAMATRONIC (UK) LTD

15 Chester Road,
Colmworth Business Park
Eaton Socon,
Cambridgeshire PE19 8YT
Office: +44 (0) 1480 479889
Fax: +44 (0) 1480 407865
sales@gamatronic.co.uk
www.gamatronic.co.uk

GAMATRONIC SOUTH AFRICA

377 Rivonia Boulevard, Rivonia
2128 Gauteng South Africa
Office: +27 11 593 2403
Fax: +27-86-6822468
info@gamatronic.co.za
www.gamatronic.co.za