REVOLUTION85+ PSU SERIES

REVOLUTION 85+

For Our Future

80 PLUS SILVER
• 850W
• 950W
• 1050W

DXX ready PCI EXPRESS 6+2P(8P)

NVIDIA SLI READY

850W/950W/1050W/1250W

FEATURES

85PLUS ready!
World's first modular cable PSU series with 85-91% efficiency @ 20-100% load. Certified by 80 PLUS® organization (850/950/1050W).

FUTURE CPU ready!
Ready for most upcoming CPU generations by 12P sockets for possible connector changes, by complying to latest EPS12V PSU design guides for compatibility & by ZERO LOAD Design for C6 state functions.

FUTURE GPU ready!
Ready for most upcoming GPU generations by 12P sockets for possible connector changes, by six massive 12V rails for perfect load distribution & by ZERO LOAD Design for Hybrid Mode functions.

AHD² Topology
Industry-leading "Asymmetric Hybrid DC-to-DC" topology with the world's highest efficiency & most stable performance.

24/7 @ 50°C ready!
Non-Stop industrial class performance at 50°C/122°F ambient.

HeatGuard
Keeping PSU fan running for 30-60 seconds after shut down to dissipate the remaining system heat and prolonging system lifetime.

PowerGuard
PSU status monitor with 4-mode LED (Off / Stand-by / OK / Fail).

SafeGuard
Industry-leading octuple protection circuitry (OCP, OVP, AC UVP, DC UVP, OPP, OTP, SCP, and SIP).

AirGuard
Patented air-inlet with optimal aero-dynamical design reducing noisy air turbulences.

SILENT ready!
Ultra-quiet 13.5cm fan with intelligent RPM control guarantees cool performance and silent operation.

SERVER ready!
SSI PSDG 2009 support for latest Intel® Core™ Extreme/i7, Xeon™ and AMD® Opteron™ and SLI™ or CrossFireX™ and AMD GAME! or AMD GAME! Ultra systems and downward compatible with SSI PSDG 2008 1.0, EPS12V 2.92, 2.91, 2.8.

99% 12V Power
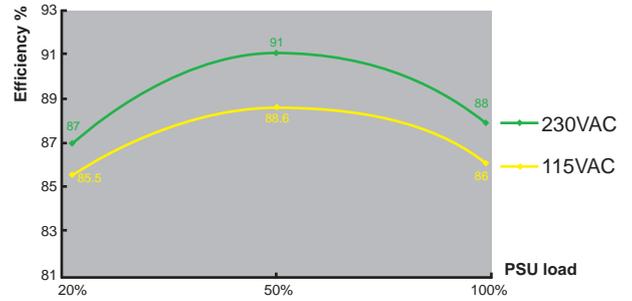World's first EPS12V PSU with 99% 12V output capability.

DXX ready!
For PCI Express 2.0/DXX next-generation graphic cards with 6+2P (8P) PCI-E connectors.

EMC ready!
Full-scale electromagnetic filtering protects your system against radiation interferences (CE EMC EN61204 compliance).
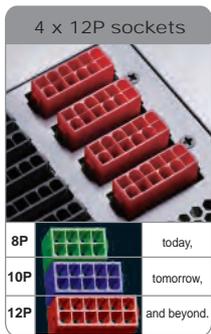
ENERMAX

80 PLUS SILVER

- 850W
- 950W
- 1050W

Efficiency graph — Efficiency % vs PSU load

- 230VAC
- 115VAC

Energy Consumption Comparison [1] 800W, 24/7 LOAD@230VAC		Efficiency	AC (W) draw	kWh draw	Annually wasted [2]			
					kWh wasted	$ 0.1512/kWh California	€ 0.22/kWh Hamburg	CO₂/kg [3]
1250W PSU	REVOLUTION85+	91.0%	879	7701	-	-	-	-
	other ~82%	82.0%	976	8546	845	$ 127.80	€ 185.95	524
	other ~80%	80.0%	1000	8760	1059	$ 160.11	€ 232.96	657

[1] Estimation based on 24/7 heavy-duty server system.
[2] Electricity fare might vary by countries and regional providers.
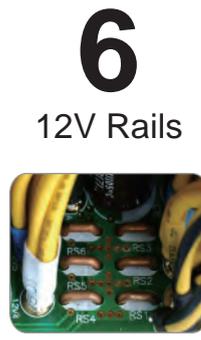[3] CO_2 comparison is based on 1kWh = 0.62kg CO_2. Figures might vary by countries.
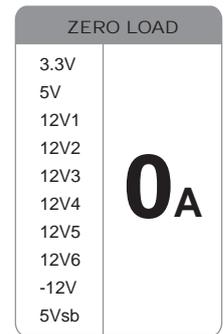
FUTURE CPU / GPU ready!

4 x 12P sockets

8P	today,
10P	tomorrow,
12P	and beyond.

for possible connector changes

\+

SSI

SSI 2009 Power Supply Design Guideline

Server System Infrastructure Specification

For best compatibility

\+

6
12V Rails

for perfect load distribution

\+

ZERO LOAD

| 3.3V |
| 5V |
| 12V1 |
| 12V2 |
| 12V3 |
| 12V4 |
| 12V5 |
| 12V6 |
| -12V |
| 5Vsb |

0A

For C6 state and Hybrid mode support

Ready for most upcoming CPU and GPU generations by 12P sockets for possible connector changes, by complying to latest EPS12V PSU design guides for compatibility, by six massive 12V rails for perfect load distribution & by ZERO LOAD Design for C6 state and Hybrid Mode functions.

REVOLUTION85+ can maintain extra tight DC regulation to support C6 mode and Hybrid graphic power saving mode thanks to its ZERO LOAD (0W) Design.

C6 state CPU

MAX ⟷ 1W

Future CPUs will have C6 power saving mode that causes them to have wide dynamic load range from their respective maximums to only 1W!


Hybrid mode GPU

MAX ⟷ 1W

Future GPUs will feature hybrid mode. When system is idle or in 2D mode, the discrete GPU(s) will hibernate and shift all GPU processes to CPU or chipset. This means they have such a wide dynamic load range as well.
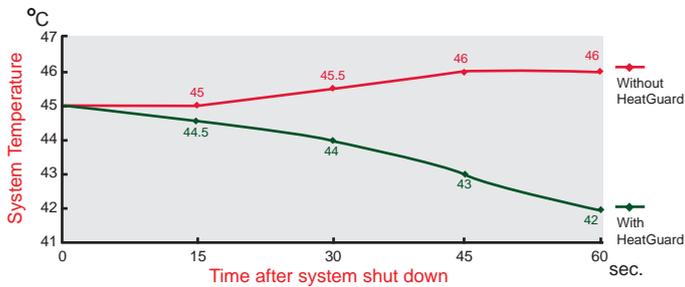
ENERMAX

AirGuard

Patented air-inlet with optimal aero-dynamical design reducing noisy air turbulences.

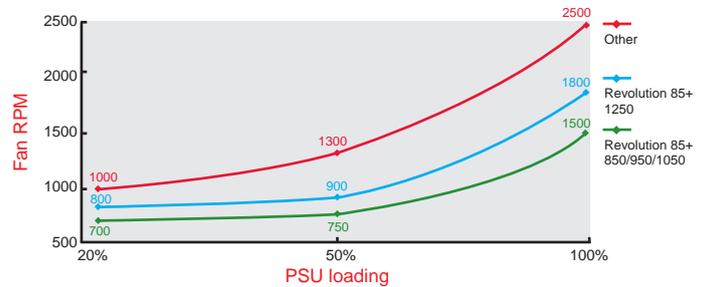with AirGuard | without AirGuard

FAN

Noisy turbulence
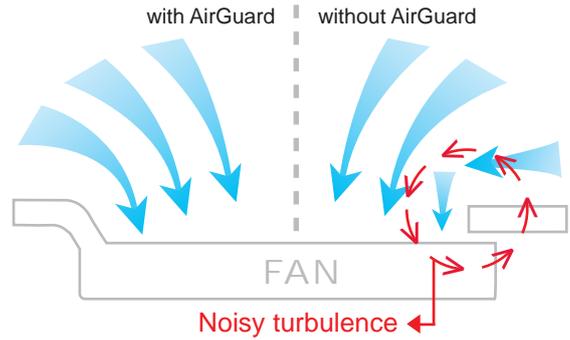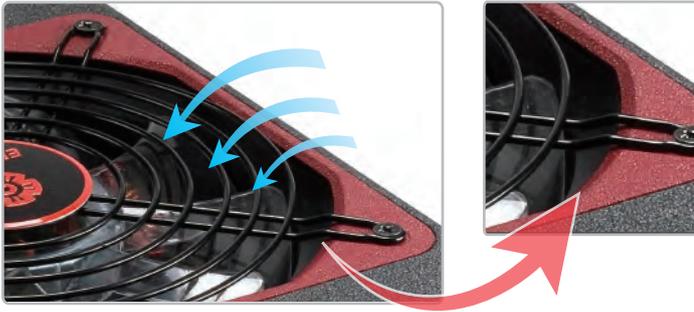
HeatGuard

After shut-down, HeatGuard will keep PSU fan running for 30-60 seconds to dissipate the remaining system heat and prolonging lifetime.

°C

System Temperature

Without HeatGuard

45 · 45.5 · 46 · 46

44.5 · 44 · 43 · 42

With HeatGuard

Time after system shut down · sec.

Silent ready!

Ultra-quiet 13.5 cm fan with intelligent RPM control guarantees cool performance and silent operation.

Fan RPM

2500 — Other

1800 — Revolution 85+ 1250

1500 — Revolution 85+ 850/950/1050

1000 · 1300
800 · 900
700 · 750

PSU loading

PowerGuard

PSU status monitor with 4-mode LED (Off/ Stand-by/ OK/ Fail).

POWERGUARD INDICTION

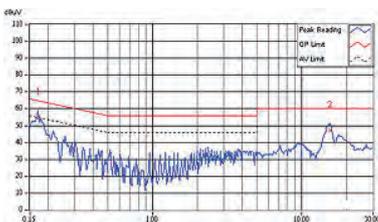| LED	INFO
OFF	NO AC INPUT
ORANGE	STANDBY MODE
GREEN	PSU NORMAL
RED	PSU PROTECTION ACTIVE

SafeGuard

Industry-leading octuple protection circuitry of OCP, OVP, UVP AC, UVP DC, OPP, OTP, SIP, and SCP protects your system.
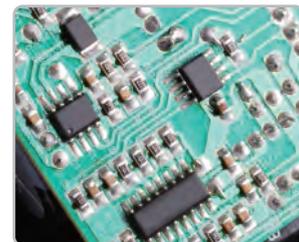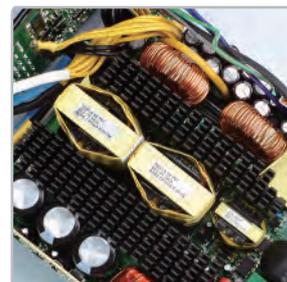

EMC ready!

Full-scale electromagnetic filtering protects your system against radiation interferences (CE EMC EN61204 compliance).

REVOLUTION85+
Tested without system chassis shelter. Meet CE EMC EN61204-3 standard.

99% 12V Power

Maximum CPU, GPU & RAID support by AHD[2] topology.

ENERMAX

SERVER ready!

Ready for most upcoming CPU and GPU generations by 12P sockets for possible connector changes, by comPSDG 2009 support for latest Intel® Core™ Extreme/i7, Xeon™ and AMD® Opteron™ and SLI™ or Cross-FireX™ and AMD GAME! or AMD GAME! Ultra systems and downward compatible with SSI PSDG 2008 1.0, EPS12V 2.92, 2.91, 2.8.

SSI

SSI 2009 Power Supply Design Guideline

Server System Infrastructure Specification

For best compatibility

≦ 4 Multi-Core CPU

Workstation / Server mainboard

≦ 18 RAM modules

Multiple graphic cards

≦ 24 Drives

*1 Heavy-duty workstation with >16 FB-DIMM will neede 5A 5Vsb power in ACPI S3 mode. REVOLUTION85+ can perfectly support them and also >14 USB devices.

*2 Max. CPU/GPU support may need additional modular cables.

*3 Actual maximum support may vary by available connectors per model and by power consumption of connected components and is limited to DC output specifications.
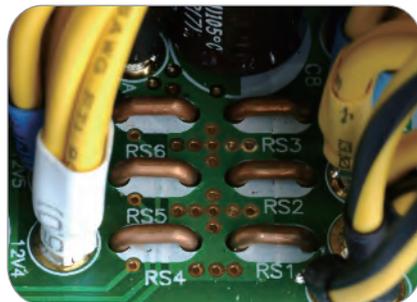
12V RAIL DISTRIBUTION

REVOLUTION85+'s 6 12V rails with 30A output and true 6 individual Over Current Protection circuits ensure best power distribution and compatibility without sacrificing safety control.

6
12V Rails
for perfect load distribution

RS6 RS3
RS5 RS2
RS4 RS1

12V4
12V5
12V6

Cables & Connectors	Native Cables				Modular Cables / Sockets		
	24P MB (12V1)	8P CPU (12V1&2)	4+4P CPU (12V1&2)	2 x 6+2P (8P) PCI-E	2 PEGs/CPU & 12 Drives max.	4 PEGs / CPUs max.	2 PEGs/CPU & 12 Drives max.
12V Rails	12V1	12V2		12V3	12V4	12V5	12V6
Rated Output	30A	30A		30A	30A	30A	30A
OCP	34-45A	34-45A		34-45A	34-45A	34-45A	34-45A

ENERMAX

REVOLUTION 85+

Industry-leading "Asymmetric Hybrid DC-to-DC" topology with the world's highest efficiency & most stable performance.

SYNC TRANSFORMER ARRAY

Triple transformer design with synchronized main transformers array for optimal load balance and performance.

Triple Japanese main electrolytic capacitors

Special heavy-duty models offering highest stability and durability.

D to D circuitry design

Converting 12VDC into 3.3 & 5V to maximize efficiency.

SafeGuard

Industry-leading octuple protection circuitry (OCP, OVP, AC UVP, DC UVP, OPP, OTP, SCP and SIP).

QUAD FORWARD CIRCUITRY

Leading quad forward circuitry for highest efficiency compared to traditional single or double forward circuitries.

FR4 Dual Layer main PCB

Excellent current conduction and improving total efficiency.

Quad PFC

Leading QUAD PFC design maximizing the Power Factor compared to traditional single or dual designs.
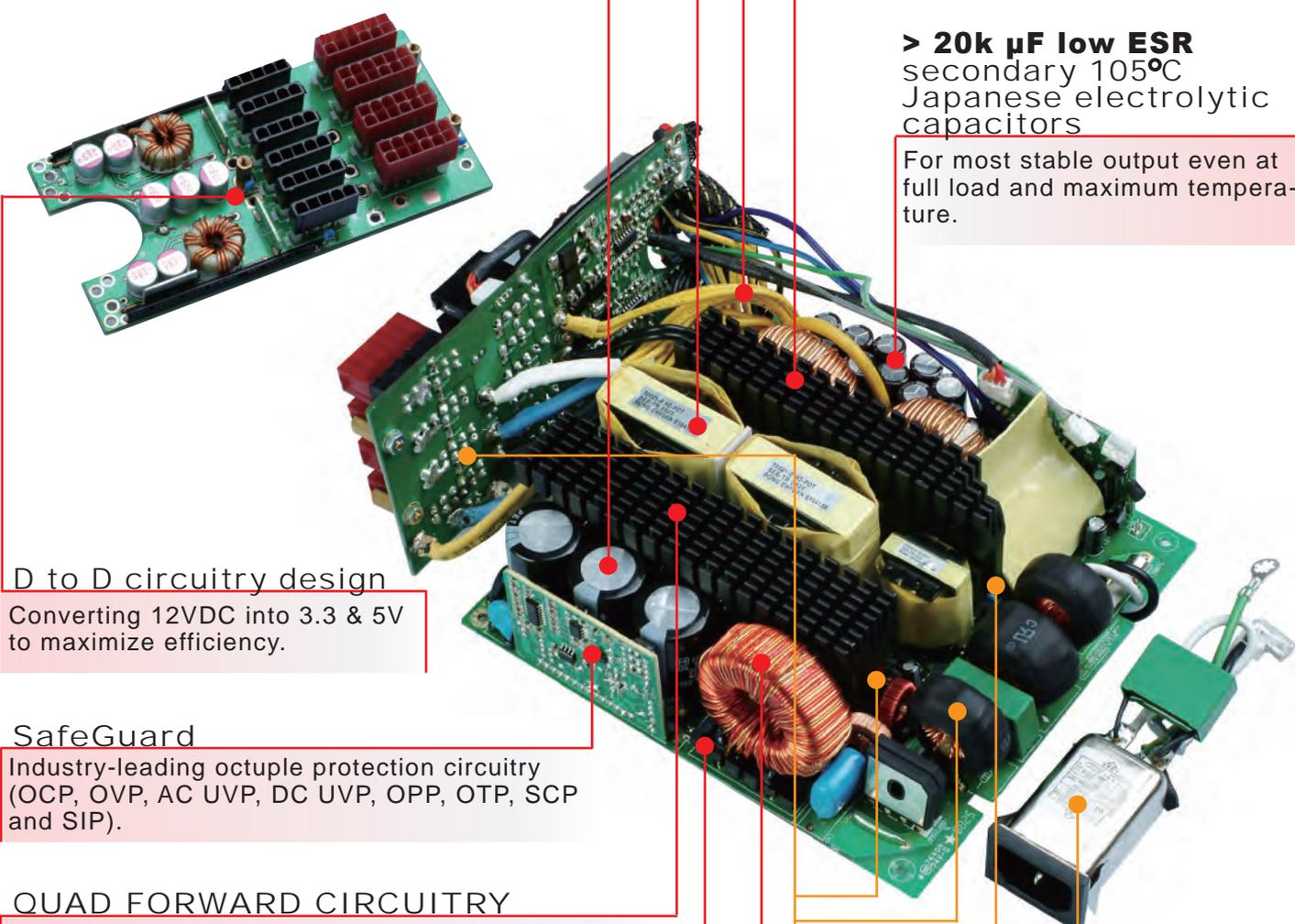
SEXTUPLE 12V RAILS

The best rail design for this PSU class for maximum safety and compatibility.

OCTUPLE RECTIFIERS

Eight synchronized rectifiers drastically minimize power loss compared to traditional DIODE designs.

> 20k µF low ESR secondary 105°C Japanese electrolytic capacitors

For most stable output even at full load and maximum temperature.

TRIPLE AC + DUAL DC EMC Filtering stage

Leading quintuple EMC filter design to provide the cleanest current.

● 1050W model illustrated.

ENERMAX

SPECIFICATIONS

Model	ERV850EWT		ERV950EWT		ERV1050EWT		ERV1250EGT	
AC Input Voltage	115-240VAC, 50-60Hz, Active PFC (Maximum range: 100-264VAC, 47-63Hz)						220-240VAC, 50-60Hz Active PFC	
AC Input Current	9-4.5A		10-5A		11-5.5A		7.5-6A	
DC Output								
	Rated	Combined	Rated	Combined	Rated	Combined	Rated	Combined
+3.3V	0-25A	160W	0-25A	170W	0-25A	170W	0-25A	170W
+5V	0-25A		0-25A		0-25A		0-25A	
+12V1	0-30A	840W (70A)	0-30A	948W (79A)	0-30A	1044W (87A)	0-30A	1248W (104A)
+12V2	0-30A		0-30A		0-30A		0-30A	
+12V3	0-30A		0-30A		0-30A		0-30A	
+12V4	0-30A		0-30A		0-30A		0-30A	
+12V5	0-30A		0-30A		0-30A		0-30A	
+12V6	0-30A		0-30A		0-30A		0-30A	
-12V	0-0.6A	7.2W	0-0.6A	7.2W	0-0.6A	7.2W	0-0.6A	7.2W
+5Vsb	0-5A	25W	0-5A	25W	0-5A	25W	0-5A	25W
Total Power	850W		950W		1050W		1250W	
Peak Power	1020W		1140W		1260W		1500W	

CABLES & CONNECTORS

Cables	Native Cables				Modular Cables			
	Mainboard	CPU 12V	6+2P PCI-E	FAN RPM	EMC012	EMC013	EMC014	EMC017
Models					3 x 4P Molex	3 x 4P Molex + FDD	Dual 6+2P(8P) PCI-E	4 x SATA
ERV850EWT					x 1	x 1	x 2	x 3
ERV950EWT					x 1	x 1	x 2	x 3
ERV1050EWT					x 1	x 1	x 3	x 4
ERV1250EGT	24P	8P & 4+4P	X2	X1	x 1	x 1	x 3	x 4

*Supplied modular cables might differ by countries or regional packages.

DIMENSIONS

190.0mm 150.0mm 86.0mm

138.0mm 64.0mm

71.3mm 30.5mm 36.5mm 48mm 34.5mm 81mm
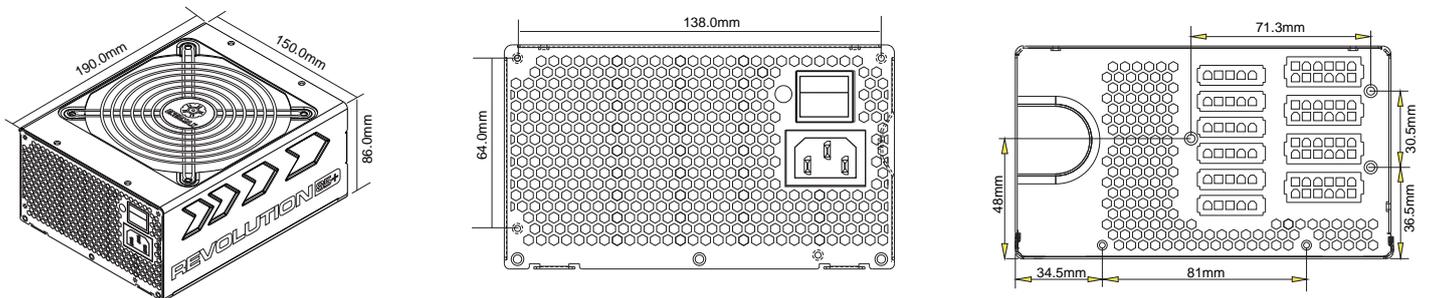
CERTIFICATIONS & STANDARDS

Safety	c UL us E134014	TÜV Rheinland Product Safety BAUART GEPRÜFT TYPE APPROVED	R43028	CCC S&E	PG AЯ46	CB	
EMC	CE	FC Tested To Comply With FCC Standards FOR HOME OR OFFICE USE	방송통신위원회				RoHS