



# REVOLUTION87+

## Power Supply Series

550W/650W/750W/850W/1000W



## Features

### 80 PLUS® GOLD

87 to 93 percent efficiency @ 230V and 20 to 100 per cent load. 80 PLUS® Gold certified.

### Dynamic Hybrid Transformer Topology

Technological breakthrough topology using a staged dynamic transformer array for extremely high efficiency with the most durable and stable output at any load.

### ErP Lot 6 ready!

Help systems to meet EU eco-design directive ErP/EuP Lot 6 (<1W in standby mode) due to improved, high-efficient 5V standby (+5Vsb) circuitry.

### ZERO LOAD Design

Supports energy saving modes of current and future CPU & GPU generations (C6 & Hybrid Mode) due to ZERO LOAD Design (no minimum load).

### Multi-Rail-Design

Stable and safe power supply thanks to up to four high-performance and massive 12V rails each with separated over current protection (OCP). Extremely low ripple noise.

### Rock Stable

DC-to-DC converter for minimum energy losses and maximum efficiency as well as best possible and most stable voltage regulation at dynamic and cross loading.

### Intel ATX12V v2.3

Compliant with latest desktop power supply design guide. Full support of most current CPU: Intel® Core 2 Duo™ / Quad™ / Extreme™ / Core i7™ / i5™ / i3™, "Sandy Bridge" and AMD® Athlon™ II X2 / X3 / X4 Phenom™ II X2 / X3 / X4 / X6, „Bulldozer™" or "Llano™".

### Fit4Server\*

Compliant with latest server power supply standard SSI PSDG and downward compatible with EPS12V v2.92, v2.8. Full support of most current CPU Intel® Core™ Extreme™ / i7™ / i5™ / i3™, Xeon™ and AMD® Opteron™. \* only ERV850EWT-G and ERV1000EWT-G

### DXXI ready!

Full support of most current DX11 graphics cards due to minimum two 6+2P (8P) PCI-E connectors.

### Full graphics power

Supports SLI™ and CrossFireX™ systems.

### Future ready and flexible

All-round modular cable management. 10/12P sockets for possible connector changes of upcoming high-performance CPU and graphics card generations.

### Air Cooling by Enermax

Integrated 13.9cm fan with patented Twister Bearing Technology ensures efficient and ultra silent cooling and long lifetime (100,000 hours MTBF).

# Features

## SpeedGuard

Ultra silent and powerful cooling performance thanks to the advanced and intelligent fuzzy logic fan speed control with min. 300 or 500 RPM up to max. 1,000 or 1,200 RPM (depending on the model).

## HeatGuard

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

## SafeGuard

Industry-leading multiple protection circuitry of OCP, OVP, UVP, OPP, OTP, SCP & SIP.

## CordGuard

Fixing the AC cord tightly to avoid accidental shutdowns of your PC.

## Non-stop @ 50°C

Non-Stop industrial class performance at 50°C ambient.

## High-quality Japanese Capacitors

Highest Enermax quality standards for leading stability and maximum durability. 105°C Japanese electrolytic capacitors without exception.

## Worldwide Compatibility

100-240V AC\* input with automatic adjustment and up to 99% active Power Factor Correction (PFC) for global usage.

\* ERV1000EWT-G: 115-240V

## ENERGY STAR 5.0 ready!

Support computer system to meet ENERGY STAR 5.0 standard.








## Dimensions (W x H x D)

550/650W: 150mm x 86mm x 160mm

750/850/1000W: 150mm x 86mm x 175mm

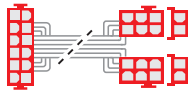

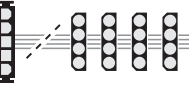

**Warranty** 5 years vendor warranty.

# Cables & Connectors






		ERV 550AWT-G	ERV 650AWT-G	ERV 750AWT-G	ERV 850EWT-G	ERV 1000EWT-G
EPS12V 24 Pin		1x 55cm (f)	1x 55cm (f)	1x 55cm (f)	1x 55cm (f)	1x 55cm (f)
CPU 8 Pin		–	–	1x 60cm (f)	1x 60cm (f)	1x 60cm (f)
CPU 4+4 Pin		1x 60cm (f)	1x 60cm (f)	1x 60cm (f)	1x 60cm (f)	1x 60cm (f)
PCI-E 2.0 6+2P (8P)		2x 50cm (m)	4x 50cm (m)	4x 50cm (m)	4x 50cm (m) 2x 45cm (f)	4x 50cm (m) 2x 45cm (f)
SATA		6x 45–90cm (m)	8x 45–90cm (m)	12x 45–90cm (m)	12x 45–90cm (m)	12x 45–90cm (m)
4P Molex		6x 45–90cm (m)	8x 45–90cm (m)	8x 45–90cm (m)	8x 45–90cm (m)	8x 45–90cm (m)
FDD		1x 105cm (m)	1x 105cm (m)	1x 105cm (m)	1x 105cm (m)	1x 105cm (m)

(f)=fixed cables; (m)=modular cables

# Cables & Connectors

Modular cabel		ERV 550AWT-G	ERV 650AWT-G	ERV 750AWT-G	ERV 850EWT-G	ERV 1000EWT-G
<b>EMC014-G</b> 2x PCI-E 2.0 6+2 Pin		<b>1x</b> 50cm	<b>2x</b> 50cm	<b>2x</b> 50cm	<b>2x</b> 50cm	<b>2x</b> 50cm
<b>EMC019-G</b> 4x SATA		<b>1x</b> 45 / 60 / 75 / 90cm	<b>1x</b> 45 / 60 / 75 / 90cm	<b>2x</b> 45 / 60 / 75 / 90cm	<b>2x</b> 45 / 60 / 75 / 90cm	<b>2x</b> 45 / 60 / 75 / 90cm
<b>EMC020-G</b> 4x 4 Pin Molex + FDD		<b>1x</b> 45 / 60 / 75 / 90 / 105cm	<b>1x</b> 45 / 60 / 75 / 90 / 105cm	<b>1x</b> 45 / 60 / 75 / 90 / 105cm	<b>1x</b> 45 / 60 / 75 / 90 / 105cm	<b>1x</b> 45 / 60 / 75 / 90 / 105cm
<b>EMC021-G</b> 2x SATA + 2x 4 Pin Molex		<b>1x</b> 45 / 60 / 75 / 90cm	<b>2x</b> 45 / 60 / 75 / 90cm	<b>2x</b> 45 / 60 / 75 / 90cm	<b>2x</b> 45 / 60 / 75 / 90cm	<b>2x</b> 45 / 60 / 75 / 90cm

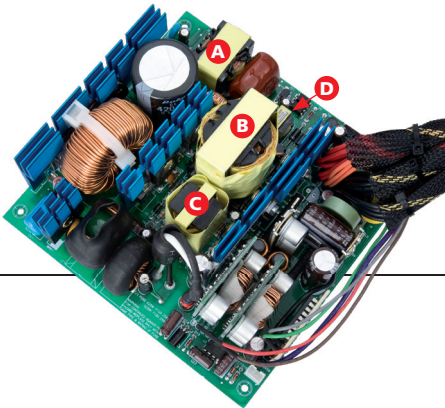
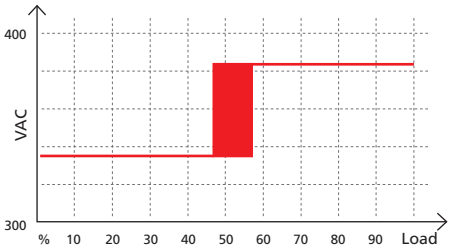
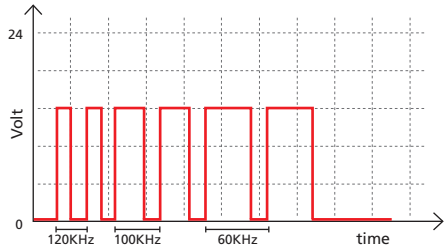
## Specifications

	ERV 550AWT-G	ERV 650AWT-G	ERV 750AWT-G	ERV 850EWT-G	ERV 1000EWT-G					
<b>AC Input Rating</b>										
Input Voltage	100-240VAC, 50-60Hz				115-240VAC, 50-60Hz					
Input Current	7.5-3A	8.5-3.5A	9-4.5A	11-5A	11-5A					
<b>DC Output Rating</b>										
+3.3V	24A	120W	24A	120W	24A	120W	24A	120W	24A	120W
+5V	24A		24A		24A		24A			
+12V1	25A	540W (45A)	25A	648W (54A)	25A	744W (62A)	30A	840W (70A)	30A	996W (83A)
+12V2	25A		25A		25A		30A		30A	
+12V3	25A		25A		25A		30A		30A	
+12V4	-		-		25A		30A		30A	
-12V	0.5A	6W	0.5A	6W	0.5A	6W	0.5A	6W	0.5A	6W
+5Vsb	3A	15W	3A	15W	3A	15W	3A	15W	3A	15W
<b>Total Power</b>	<b>550W</b>	<b>650W</b>	<b>750W</b>	<b>850W</b>	<b>1000W</b>					
<b>Peak Power</b>	<b>605W*</b>	<b>715W*</b>	<b>825W*</b>	<b>935W*</b>	<b>1100W*</b>					
Modular cable management										

\* Peak power may last up to 60 seconds.



# Dynamic Hybrid Transformer Topology (DHT)

All current options for further improvement of the PSU DC stage have been exhausted. For this reason, PSU manufacturers focus on the development of more efficient AC technologies. With the so-called "Dynamic Hybrid Transformer Topology" Enermax made the breakthrough: It is based on three pathbreaking innovations:

DYNAMIC HYBRID TRANSFORMER TOPOLOGY		
DYNAMIC RESONANT TRANSFORMER ARRAY	DYNAMIC VOLTAGE BOOSTING TRANSFORMING	DYNAMIC FREQUENCIES TRANSFORMING
<p>Enermax implemented a so-called Dynamic Resonant Transformer Array. It is based on the high-efficient resonant topology which is used for example in LCD monitors. The most noticeable modification on PCB is an additional resonant choke.</p> <p><b>A</b> RESONANT CHOKE      <b>C</b> DRIVER TRANSFORMER  <b>B</b> MAIN TRANSFORMER    <b>D</b> STANDBY TRANSFORMER</p> 	<p>Initially, the capacitors are charged with alternating current (AC) from the wall socket. They ensure the continuous AC supply of the transformers according to the DC consumption of the PC system. Up to now, capacitors have been charged statically, so that too much power got lost at low loads. The capacitors of Revolution87+ series are charged with dynamic voltages – according to the required system power. That way, Enermax is able to increase the efficiency significantly.</p> 	<p>Transformers step the alternating current up or down. During this operation a part of the input power gets lost. Enermax managed to optimize the AC-to-DC conversion by the use of dynamic frequencies. The transformers work with a wider frequency range according to the variable power consumption of system components. That way, Enermax is able to reduce energy losses during AC-to-DC conversion radically.</p> 

## ZERO LOAD Design

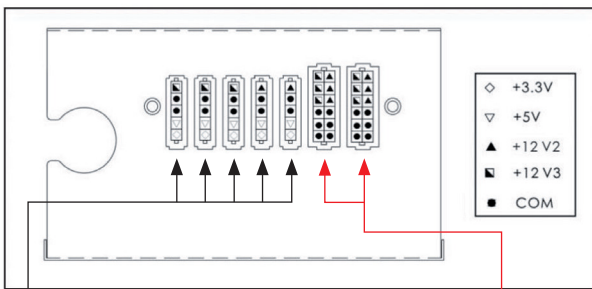
The latest graphics cards and processors are equipped with energy-saving functions that work extremely efficient at low load as well as in idle mode.

 <p><b>CPU C6-State</b></p> <p>MAX ←→ 1W</p> <p>(so-called Deep Power Down): At idle mode, modern multi-core processors can reduce the voltage nearly to 0V by shutting down unused processor cores.</p>	 <p><b>GPU Hybrid-Mode</b></p> <p>MAX ←→ 1W</p> <p>During idle mode or simple 2D operation, modern graphics cards switch all operations to the mainboard GPU. The internal graphics card processor shuts down.</p>
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These energy saving functions are a big challenge for power supplies. Only few can work stable at loads below 1W. They shut down or react with an unstable power supply. Enermax power supplies with ZERO LOAD Design are well prepared for the energy saving modes of modern graphics cards and processors. Even at a load below 1W, they can provide rock stable voltages.

# Modular Sockets & 12V-Distribution

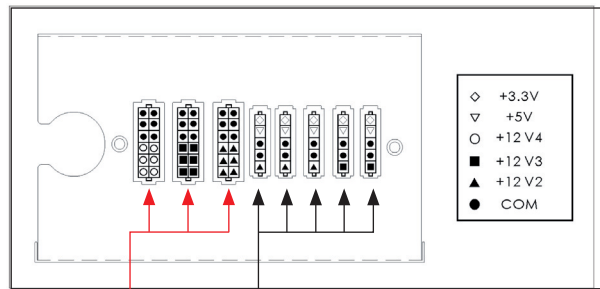
550W / 650W



**Black 5 Pin sockets (3.3V/5V/12V)**  
For modular cables of hard disk or optical disk drives or peripherals.

**Red 12 Pin sockets (12V)**  
For modular cables of graphics cards, CPUs or RAM.

750W / 850W / 1000W



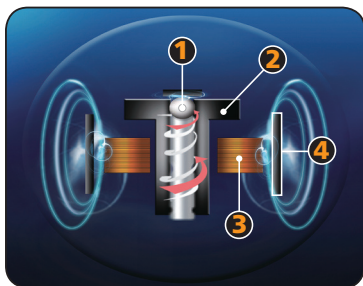
**Black 5 Pin sockets (3.3V/5V/12V)**  
For modular cables of hard disk or optical disk drives or peripherals.

## Twister Bearing Technology

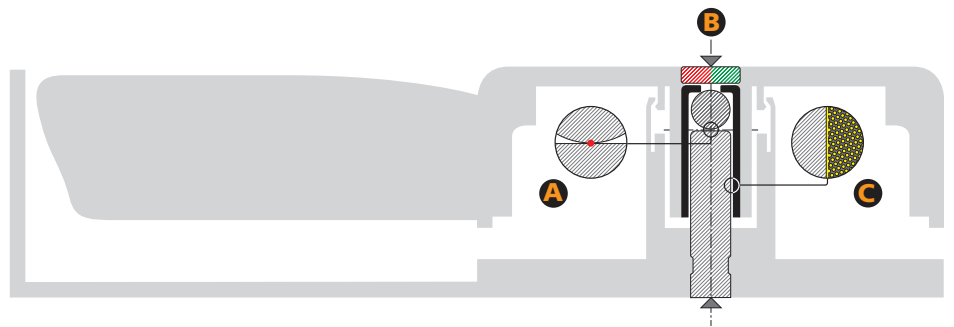
**Twister Bearing Technology (patented)**

Persistent low noise level

Longer life: up to 100,000 hours MTBF



- 1** Magnetized steel ball
- 2** Self-lubricating nano bearing
- 3** Coils
- 4** Flexible magnets inside the rotor

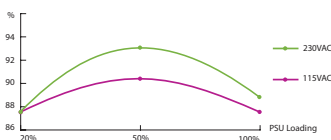


- A** Minimal contact area  
For an effective noise reduction
- B** Rotor with integrated magnet  
For a frictionless and smooth motion
- C** Self-lubricating bearing sleeve  
Abrasion protection for a longer lifetime

**Up to 93% Efficiency**

@ 230V

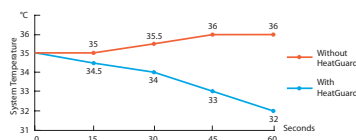
PSU Efficiency



Leading Technology for highest efficiency.

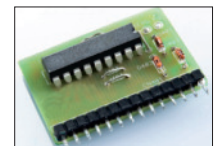


**HeatGuard**



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

**SafeGuard**



Mehrfacher Schutzmechanismus (OCP, OVP, UVP, OPP, OTP, SCP und SIP).

## Certifications & Standards

