

# User's Manual



ZM850/1000-GVM



## Two Forward Switching Power Supply

※ To ensure safe and easy installation, Please read the following precautions.

[www.ZALMAN.com](http://www.ZALMAN.com)

## 1. Warnings and Safety Precautions



Neglecting the following may cause serious injury or death.

- ▶ Opening the cover of the product while the power cord is plugged into an outlet may cause electrocution or critical damage to the product.
- ▶ Handling the power cord with wet hands may cause electrocution.
- ▶ Inserting fingers or metallic objects into the cooling fan may cause injury or electrocution.



Neglecting the following may cause minor injuries, degrade product conditions or cause malfunction.

- ▶ Operating the product in an extremely cold or hot environment can degrade product performance and lifespan.
- ▶ Exposure to liquids may cause malfunction.
- ▶ Operation in a humid or non-ventilated environment may reduce product lifespan.
- ▶ Plugging the main power connector P1 into the motherboard while the product is connected to the AC power source may cause damage to the motherboard.
- ▶ Make sure that the connectors are connected to their designated locations, and that the connectors are not oriented in the wrong direction when connecting the DC output connectors.
- ▶ Please use gloves to prevent injuries during installation.
- ▶ Product designs and specifications may be revised without prior notification to improve quality and performance.

(Disclaimer) Zalman Tech Co., Ltd. is not responsible for any damages due to external causes, including but not limited to, improper use, problems with electrical power, accident, neglect, alteration, repair, improper installation, or improper testing.

## 2. Components



Power Supply



Four Screw



Five Cable Tie



AC Power Cord



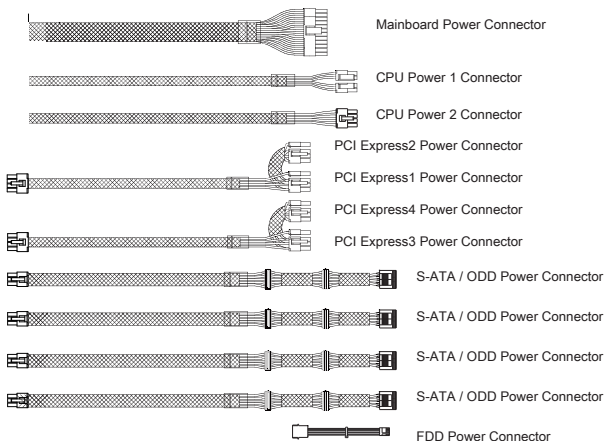
User's Manual

## 3. Specifications

### 1) ZM850-GVM Electrical & Physical Specifications

AC Input Range	Voltage	100-240VAC ±10%		Vout	Output Load Rating			Combined Power		
	Frequency	50Hz ~ 60Hz ±3			I <sub>min</sub>	I <sub>max</sub>	I <sub>peak</sub>			
AC Input Current	100VAC	15A		+3.3V	0.1A	22A		140W	850W	
	240VAC			+5V	0.2A	22A				
PFC Type	Active PFC			+12V	0.1A	70.5A		846W		
Power Factor Correction	Max 99%			-12V	0.0A	0.5A		6W		
Inrush Current Limit (@ Cold Start at 25°C)	100VAC	Max 150A		+5VSB	0.0A	3A		15W		
	240VAC			Ambient Temperature						
Efficiency	Max 88% @ 230VAC, Typical load			Operation	0 ~ +45°C					
				Storage	-20 ~ +70°C					
DC Output Voltage Regulation	Vout	Regulation Range		At Full Load						
	+3.3VDC	±5%	+3.14 ~ +3.47V							
	+5VDC	±5%	+4.75 ~ +5.25V							
	+12VDC	±5%	+11.4 ~ +12.6V							
	-12VDC	±10%	-10.8 ~ -13.0V							
	+5VSB	±5%	+4.75 ~ +5.25V							
DC Output Ripple & Noise	Vout	Standard Range		At Full Load						
	+3.3VDC	50mV								
	+5VDC	50mV								
	+12VDC	120mV								
	-12VDC	120mV								
	+5VSB	50mV								
				Protection Functions						
				Over-Current Protection (OCP)						
				Over-Voltage Protection (OVP)						
				Under-Voltage Protection (LVP)						
				Short-Circuit Protection (SCP)						
				Over-Power Protection (OPP)						
				Over-Temperature Protection (OTP)						
				Ambient Humidity						
				Operation						5% ~ 95% RH
				Storage						5% ~ 95% RH
				Dimensions						160(L) * 150(W) * 86(H)mm
				Weight						2.8Kg

### 2) ZM850-GVM Cable Specifications

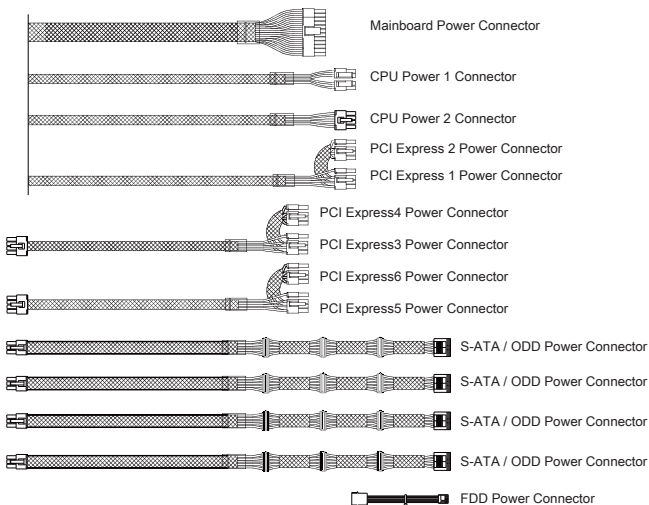


## 3. Specifications

### 3) ZM1000-GVM Electrical & Physical Specifications

AC Input Range	Voltage	100~240VAC ±10%		Vout	Output Load Rating			Combined Power							
	Frequency	50Hz ~ 60Hz ±3			I <sub>max</sub>	I <sub>max</sub>	I <sub>peak</sub>								
AC Input Current	100VAC	15A		+3.3V	0.1A	23A		140W	1000W						
	240VAC			+5V	0.2A	23A									
PFC Type	Active PFC			+12V	0.1A	83A		996W							
Power Factor Correction	Max 99%			-12V	0.0A	0.5A		6W							
Inrush Current Limit (@ Cold Start at 25°C)	100VAC	Max 150A		+5VSB	0.0A	3A		15W							
	240VAC			Ambient Temperature											
Efficiency	Max 88% @ 230VAC, Typical load			Operation		0 ~ +45°C									
				Storage		-20 ~ +70°C									
DC Output Voltage Regulation	Vout	Regulation Range		At Full Load											
	+3.3VDC	±5%	+3.14 ~ +3.47V							Ambient Humidity					
	+5VDC	±5%	+4.75 ~ +5.25V							Operation		5% ~ 95% RH			
	+12VDC	±5%	+11.4 ~ +12.6V							Storage		5% ~ 95% RH			
	-12VDC	±10%	-10.8 ~ -13.0V							Dimensions		160(L) * 150(W) * 86(H)mm			
	+5VSB	±5%	+4.75 ~ +5.25V							Weight		2.9Kg			
DC Output Ripple & Noise	Vout	Standard Range		At Full Load											
	+3.3VDC	50mV								Protection Functions					
	+5VDC	50mV								Over-Current Protection (OCP)					
	+12VDC	120mV								Over-Voltage Protection (OVP)					
	-12VDC	120mV								Under-Voltage Protection (UVP)					
	+5VSB	50mV								Short-Circuit Protection (SCP)					
				Over-Power Protection (OPP)											
				Over-Temperature Protection (OTP)											

### 4) ZM1000-GVM Cable Specifications



## 4. Certifications



**FC** Tested To Comply  
With FCC Standards  
FOR HOME OR OFFICE USE



**RoHS**

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## Сайт техники и электроники

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