SILVERSTONE®
Designing Inspiration

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Issue date: July, 2012
NO.G11216570

ZEUS SERIES

SST-ZM1350

The benchmark of stability, flexibility, and power

- 1350W continuous output and 1500W peak power (at 50°C)
- Six / Single +12V rails adjustable switch
- Class-leading +12V rails combined loading up to 105A
- Low ripple & noise with strict ±1% voltage regulation
- User-accessible +3.3V / +5V / +12V rails voltage adjustment pots
- 80 PLUS Silver certification with 80 PLUS Gold level efficiency at 230Vac
- Advanced 100% full cable management
- Industrial grade components
- Long life dual ball bearing 80mm fan with speed control switch

SPECIFICATION

SilverStone ZEUS
ZM1350
ATX12VSwitching Power Supply
With Active PFC

1. Input Requirements

1.1 Input Voltage

The power supply shall be operated at universal input voltage defined in the following table.

Table 1 AC Input Line Requirements

Input Voltage	Min	Nom.	Max
Voltage	90	100 - 240	264

Power factor correction (PF)>0.90 at full load.

1.2 Frequency

The input frequency range is from 50Hz to 60Hz.

1-3. Inrush Current

The max inrush current is 160A for 230VAC 90A for 115VAC.

1-3-1. Cold Start

Conditions	Limits
115/230VAC, full load. 25℃ ambient.	No component over stress or damage should occur to the power supply. Input fuse shall not blow.

1-3-2. Warm Start

Conditions	Limits
Turn off at 132/264VAC full load for 1 sec then turn on at the peak of the input voltage cycle at 25℃ ambient.	No component over stress or damage should occur to the power supply. Input fuse shall not blow.

1-4. AC Input Current

AC Input	MAX	Units
100-240V	18-9	AMPS

1-5. Efficiency

The power supply efficiency shall not be less than85% at the maximum load of sec. 2.2 and 115Vac input voltage.

2. Output Requirements

2-1. Output Regulations

The power supply shall be operated at universal input voltage defined in the following table.

Output Voltage	Range	MIN	Nominal	MAX	Units
+5V	±1%	+4.95	+5.00	+5.05	Volts
+12V1~V6	±1%	+11.88	+12.00	+12.12	Volts
-12V	±10%	-10.80	-12.00	-13.20	Volts
+3.3V	±1%	+3.26	+3.30	+3.33	Volts
+5Vsb	±5%	+4.75	+5.00	+5.25	Volts

Note: 1). The above voltage range should also include ripple and noise.
2). The output voltage should be measured at the terminals of output connector.

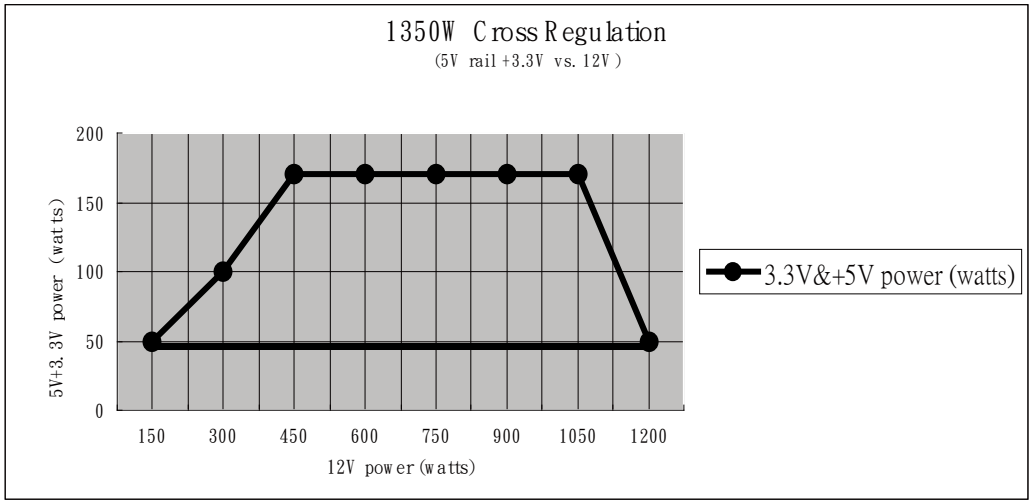
2-2. DC Load Requirements

Output Voltage	MIN	NOM	MAX	Units
+5V	1.0	12.5	25	AMPS
+12V1~V6	1.0	15	30	AMPS
-12V	0.0	0.25	0.5	AMPS
+3.3V	1.0	12.5	25	AMPS
+5Vsb	0.1	2	4	AMPS

Note : 1). The maximum continuous total DC output power shall not exceed1350 Watts.
2). The maximum continuous combined load on +5V and +3.3V outputs shall not exceed 170 Watts.
3). The maximum continuous combined load on +12V1outputs shall not exceed 1260 Watts.
4). The maximum continuous combined load on +5V, +3.3V and +12V1~+12V6 outputs shall not exceed 1324Watts.

2-3. Cross Regulation

The DC loads shall remain within the ranges specified in 2-2 DC Load Requirements and the DC output voltages also shall remain within the regulation ranges specified in 2-1 Output Regulation when measured at the load end of the output connectors.



2-4. +5V standby voltage

The +5Vsb is on whenever the AC power is present.

2-5. DC Output Voltage Ripple and Noise

Output Voltage	Ripple & Noise Max	U
+5V	20	mV
+12V1~V6	25	mV
-12V	120	mV
+3.3V	20	mV
+5Vsb	50	mV

Operation : nits

Note : 1)The measurements should be made by crossing a 10uF/ electrolytic and a 0.1uF ceramic disk capacitors at each output with measuring bandwidth from DC to 20 MHz. If ambient temperature is under 20℃ or over 30℃, the AC input should be nominal input.

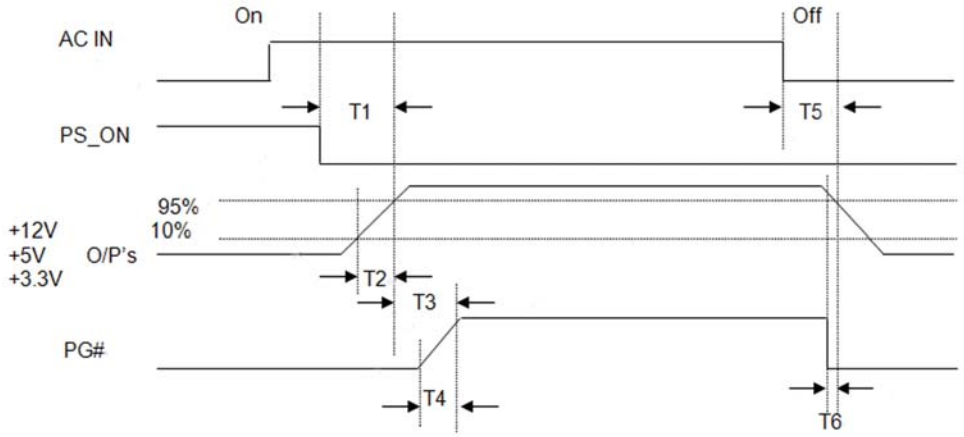
2-5. DC Output Voltage Ripple and Noise

MAX	Units
1350	Watts

2-7. Remote ON/OFF Control

The power supply outputs shall be enabled with an active-low TTL signal.
When TTL signal is low, the DC outputs are to be enabled.
When TTL signal is high or open circuited, the DC outputs are to be disabled.
Electronic means or a mechanical switch may activate the TTL signal.
After the TTL signal is active high, must wait for 3 seconds before active low again.

2-8. Power Sequence



2-9. Power On Time (T1)

MAX	Units
1000	ms

2-10. Rise Time (T2)

MIN	MAX	Units
1.0	50	ms

2-11. Power Good Delay Time (T3)

MIN	MAX	Units
100	500	ms

The test environment is 25℃ condition @ nominal input.

2-12. Power Good Rise Time (T4)

MAX	Units
10	ms

2-13. Hold Up Time (T5)

MIN	Units
16	ms

The test environment is 25℃ & full load condition @ nominal input.

2-14. Power Fail Signal (T6)

Power good signal shall go to a down level 1ms before +5V output voltage falls below the regulation limits during PS-ON signal pull high.

MIN	Units
1.0	ms

3. Protections

3-1. Over Voltage Protection

When the DC outputs (+5V, +12V1~+12V6, +3.3V) have over voltage condition, the power supply shall provide latch mode over voltage protection.

DC output	Max	Units
+12V1~+12V6	15.5	V
+5V	6.5	V
+3.3V	4.6	V

3-2. Short Circuit Protection
A short circuit placed to ground shall cause no damage or power supply shall be shutdown. (The contact resistance is 0.05 ohm when the outputs short circuit.)

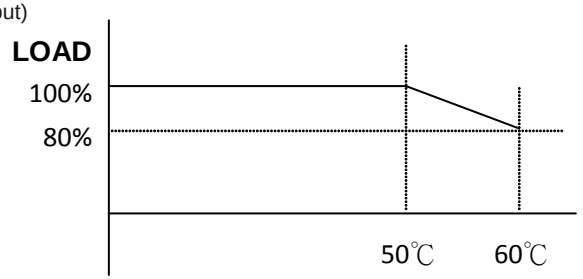
3-3. Protection Reset
When the power supply latches into shutdown condition due to a fault on an+5V,+3.3V,+12V1~+12V6 output(OVP, UVP), the protection shall reset after the fault has been removed, use remote on/off control or recycle the AC power again for a typical of 5 seconds.

3-4. Over Shoot
Any output overshoot at turn on shall be less than 15% of the nominal output value (with resistive load) as described in sec. 2.1.

3-5. Over Power Protection
At 115/230Vac input the power supply will shut down all DC output within 110% to 150% of full load.

4. Environment

4-1. Operation/Storage Temperature Range
Operation : 5℃ to 50℃ (nominal input)
Storage : -40℃ to 70℃



4-2. Humidity (none condensing)
TOperation: 20% to 85% RH (nominal input)
Storage : 10% to 95% RH

5. Safety

5-1. UL60950-1,

5-2. TUV EN 60950-1

6. EMI Requirements

6-1.CE

6-2.BSMI

6-3.FCC part 15 sub part J class B at system load

6-4.CISPR 22 CLASS B

7. Dielectric Voltage Withstand (HI-POT)
The power supply shall withstand for 3 seconds without breakdown the application of an 1800Vac-supply voltage applied between both input line and chassis (15mA AC Cutoff current).
Isolating transformers shall similarly withstand 4242Vdc applied between both primary and secondary windings for a minimum of one minute.

8. PFC
Active Power Factor Correction, complies with EN 61000-3-2: 1995+A1+A2:1998, Class D.

9. Electrostatic Discharge (ESD)
Comply with IEC 61000-4-2.

10. EFT/ Burst
Comply with IEC 61000-4-4.

11. Surge
Comply with IEC 61000-4-5.

12. Burn-In
Applying 115 Vac ±10 % or 230 Vac ±10% input voltage and maximum load for this product in 40 ±5 ℃ chamber.

13. M.T.B.F.
The power supply shall have a minimum mean time between failure greater than 100,000 hours at continuous operation of 100% load and an ambient temperature of 25℃ .

14. Dimension.
230(D)X 150(W)X 85(H) mm.

15. Connectors.

M/B 24PIN connector

	Signal	Pin	Pin	Signal	
Orange	+3.3V	13	1	+3.3V	Orange
Blue	-12VDC	14	2	+3.3V	Orange
Black	COM	15	3	COM	Black
Green	PS-ON	16	4	+5VDC	Red
Black	COM	17	5	COM	Black
Black	COM	18	6	+5VDC	Red
Black	COM	19	7	COM	Black
White	N/C	20	8	PWRGOOD	Grey
Red	+5VDC	21	9	+5Vsb	Purple
Red	+5VDC	22	10	+12V	Yellow
Red	+5VDC	23	11	+12V	Yellow
Black	COM	24	12	+3.3V	Orange

EPS 12V 8PIN connector

	Signal	Pin	Pin	Signal	
Yellow	+12V	5	1	COM	Black
Yellow	+12V	6	2	COM	Black
Yellow	+12V	7	3	COM	Black
Yellow	+12V	8	4	COM	Black

ATX 12V 4PIN (4+4PIN EPS 12V in split mode)

	Signal	Pin	Pin	Signal	
Black	GND	1	3	+12V	Yellow
Black	GND	2	4	+12V	Yellow

4PIN peripheral connector (HDD) 4PIN floppy connector (FDD)

	Signal	Pin	Pin	Signal	
Yellow	+12V	1	1	+5VDC	Red
Black	COM	2	2	COM	Black
Black	COM	3	3	COM	Black
Red	+5VDC	4	4	+12V	Yellow

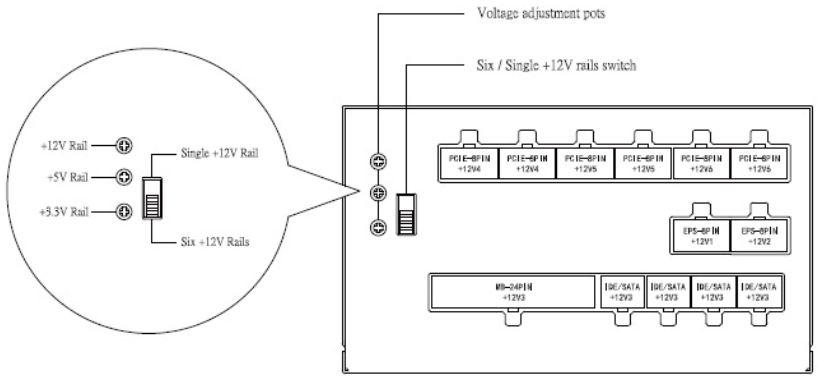
SATA connector

	Signal	Pin
Orange	+3.3V	5
Black	COM	4
Red	+5V	3
Black	COM	2
Yellow	+12V	1

6PIN PCI Express connector

	Signal	Pin	Pin	Signal	
Yellow	+12V	1	4	COM	Black
Yellow	+12V	2	5	COM	Black
Yellow	+12V	3	6	COM	Black

16. Special function

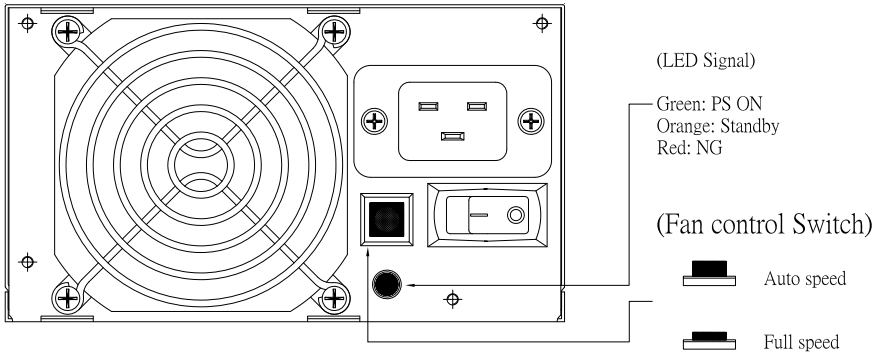


NOTE：Six / Single +12V rails switch

This switch should only be used when the power supply is turned off via its own power switch or with the power cord unplugged. Please do not adjust the switch when the PSU is in operation.

NOTE：Voltage adjustment pots

Please fine tune the +12V, +5V, +3.3V adjustment pots gradually while monitoring the changes via system monitor (BIOS, digital readabout, software, etc…)



Warranty Information

This product has a limited 5 year warranty in North America, Europe, and Australia.
For information on warranty periods in other regions, please contact your reseller or SilverStone authorized distributor.

Warranty terms & conditions

1. Product component defects or damages resulted from defective production is covered under warranty.
   Defects or damages with the following conditions will be fixed or replaced under SilverStone Technology's jurisdiction.
a) Usage in accordance with instructions provided in this manual, with no misuse, overuse, or other inappropriate actions.
b) Damage not caused by natural disaster (thunder, fire, earthquake, flood, salt, wind, insect, animals, etc…)
c) Product is not disassembled, modified, or fixed. Components not disassembled or replaced.
d) Warranty mark/stickers are not removed or broken.
   Loss or damages resulted from conditions other than ones listed above are not covered under warranty.

2. Under warranty, SilverStone Technology's maximum liability is limited to the current market value for the product (depreciated value, excluding shipping, handling, and other fees). SilverStone Technology is not responsible for other damages or loss associated with the use of product.

3. Under warranty, SilverStone Technology is obligated to repair or replace its defective products. Under no circumstances will SilverStone Technology be liable for damages in connection with the sale, purchase, or use including but not limited to loss of data, loss of business, loss of profits, loss of use of the product or incidental or consequential damage whether or not foreseeable and whether or not based on breach of warranty, contract or negligence, even if SilverStone Technology has been advised of the possibility of such damages.

4. Warranty covers only the original purchaser through authorized SilverStone distributors and resellers and is not transferable to a second hand purchaser.

5. You must provide sales receipt or invoice with clear indication of purchase date to determine warranty eligibility.

6. If a problem develops during the warranty period, please contact your retailer/reseller/SilverStone authorized distributors or SilverStone **http://www.silverstonetek.com**.
   Please note that: (i) You must provide proof of original purchase of the product by a dated itemized receipt; (ii) You shall bear the cost of shipping (or otherwise transporting) the product to SilverStone authorized distributors. SilverStone authorized distributors will bear the cost of shipping (or otherwise transporting) the product back to you after completing the warranty service; (iii) Before you send the product, you must be issued a Return Merchandise Authorization ("RMA") number from SilverStone. Updated warranty information will be posted on SilverStone's official website. Please visit **http://www.silverstonetek.com** for the latest updates.

Additional info & contacts

For North America (usasupport@silverstonetek.com)
SilverStone Technology in North America may repair or replace defective product with refurbished product that is not new but has been functionally tested. Replacement product will be warranted for remainder of the warranty period or thirty days, whichever is longer. All power supplies should be sent back to the place of purchase if it is within 30 days of purchase, after 30 days, customers need to initiate RMA procedure with SilverStone Technology in USA by first downloading the "USA RMA form for end-users" form from the below link and follow its instructions.
http://silverstonetek.com/contactus.php

For Australia only (support@silverstonetek.com)
Our goods come with guarantees that cannot be excluded under the Australian Consumer Law.
You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage.
You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.
Please refer to above "Warranty terms & conditions" for further warranty details.

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