



SILVERSTONE

ZEUS Series

ZEUS 1350R Titanium

ZEUS 1650R Titanium

**80 PLUS Titanium 1350W /1650W ATX 3.1 & PCIe 5
Fully Modular ATX Power Supply**

Compliant with ATX 3.1 and PCIe Gen 5 standards, supporting 12V-2x6 PCIe connectors

Latest PCIe Gen 5 standard to support up to 2x power excursion

High efficiency with 80 PLUS Titanium certification

24/7 continuous power output with 50°C operating temperature

SPECIFICATION

SilverStone ZEUS Series

ZEUS 1350R Titanium / SST-ZU1350R-TM ZEUS 1650R Titanium / SST-ZU1650R-TM

ATX Switching Power Supply
80 PLUS Titanium efficiency certified.
1350W / 1650W

1.Scope

This document defines the Desktop Power Supply quality, 5 output ,power supplies for the application of Desktop systems.

This power supplies meet the buss structures of Intel platform, and the following key features:

- 1)Input: Full Range (90-264Vrms) with Active Power Factor Correction.
- 2)Output: Product is provided with a total of 8 output to meet the requirement of ATX12V/EPS12V platform.
- 3)Cooling: A 135mm high reliable DC fan is used for cooling the power supply.

2.Electrical

The electrical specifications that follow is going to meet over the environmental ranges specified in Section 3 unless otherwise noted.

2.1.AC Input

Table 1 lists AC input voltage and frequency range for continuous operation. The power supply is capable of supplying full-rated output power over the input voltage ranges as specified.

Parameter	Min	Nominal Input	Max	Unit
V _{in} Voltage	90	100-240	264	Vrms
V _{in} Frequency	47	50/60	63	Hz
V _{in} Current 1350W/1650W		18.0		A
Power Factor(PF)		> 0.95		at 230Vac input and full

Table 1. AC input

- When AC Input voltage is lower than 115Vac, 1650W / 1350W total output power must be reduced to 1250W
- The inrush current is less than 100A under the conditions of 230Vrms input and 25°C ambient cold start. The inrush current is limited to the extent that no damage will be done to the power supply under any specified line, load, and temperature conditions. The inrush current will not cause external protection devices (fuses) to trip.
- The leakage current of the power supply module is less than 3.5mA measured at 230Vac input.
- The repetitive ON/OFF cycling of AC input voltage will not damage the power supply.
- The primary fuse is installed for input over-current protection, and meet product safety requirement.

2.2.DC Output

2.2.1. DC Output Voltage Regulations

The DC output voltages remain within the regulation ranges shown in Table 2. when measured the at load end of the output connectors under all AC line, O/P loads, and environmental conditions. The voltage regulation will be maintained under continuous operation for a period of time equal to the MTBF specified in section 5.2 at any steady

Output t	Output Voltage	Minimu m	1350W Max. (A)	1650W Max. (A)
V1	+12V	0.0	112.5	137.5
V2	+5V	0.0	22.0	22.0
V3	+3.3V	0.0	22.0	22.0
V4	-12V	0.0	0.3	0.3
V5	+5Vsb	0.0	3.0	3.0
Total Continuous Power			1350W	1650W
Max. combined O/P of V1			1350W	1650W
Max. combined O/P of V2 & V3			120W	120W
Max. combined O/P of V4			6.0W	6.0W
Max. combined O/P of V5			15W	15W

state temperature and operating conditions specified in section 3.

2.2.2. DC Output Efficiency & Eup* requirements

The power supply efficiency is 90% minimum measured at 10%, efficiency is 92% minimum & PFC 0.95 measured at 20%, efficiency is 94% (-0.2% Regulation) minimum measured at 50%, , efficiency is 90% minimum measured at 100% which is 115Vrms conditions. The efficiency is measured in accordance with the definition released by the 80 Plus Organization (Plug Load Solutions).

The Table 3.1 defines the power supply output load

	LOAD	+12V	+5V	+3.3V	-12V	+5VSB	EFF
1350W	10%	10.191A	1.31A	1.31A	0.03A	0.296A	90%
	20%	20.382A	2.619A	2.619A	0.059A	0.592A	92%
	50%	50.956A	6.549A	6.549A	0.148A	1.48A	94%
	100%	101.912A	12.973A	12.973A	0.492A	2.950A	90%
1650W	10%	12.657A	1.331A	1.331A	0.049A	0.296A	90%
	20%	25.313A	2.662A	2.662A	0.099A	0.592A	92%
	50%	63.283A	6.654A	6.654A	0.247A	1.481A	94%
	100%	126.527A	13.308A	13.308A	0.494A	2.962A	90%

Table 3.1 Power supply output load

Low Load Efficiency	10W / 2%
Required	60%

In order to meet the 2010 and 2013 ErP Lot 6 requirements, AMS&2014 ErP Lot 3 requirements, and if any Computers use an Alternative Sleep Mode (ASM) then the 5V standby efficiency should be met as shown in Table 4 which is measured with the main outputs off (PS_ON# high state).

5VSB Load Target	5VSB Actual Load	Efficiency Target (both 115V and 230V input)	Remark
45mA		≥45%	ErP* Lot 6 2013
90mA		≥55%	ErP* Lot 6 2010
0.55A		≥75%	ASM and ErP* Lot 3 2014
1.00A		≥75%	Recommend
1.50A		≥75%	ASM and ErP* Lot 3 2014
Max / Label	3.0A /Label	≥75%	Recommend

Table 4. The power supply typical output load distribution

2.2.3. DC Output Ripple & Noise

The output ripple & noise specifications listed in Table 5. will meet throughout the load ranges as specified in section 2.2.2 and the nominal line input voltage conditions as specified in section 2.1. Ripple & noise is defined as periodic of random signals over a frequency band of 10Hz to 20MHz. Measurements should be made with an oscilloscope with 20MHz bandwidth. adding a 10uF electrolytic capacitor and a 0.1uF ceramic capacitor across output terminal during ripple & noise measurement.

	+12V	+5V	+3.3V	-12V	+5Vsb	Unit
Max Ripple & Noise	50	50	50	80	50	mV P-P

Table 5. DC Output Ripple & Noise

2.2.4. DC Output Transient Response

The output voltages will remain within the regulation limits specified in Table 2. The load-changing repetition rate is 50Hz to 10KHz, and the transient load slew rate 1.0A/us. The maximum step load size, and output capacitive loading are specified as followings in Table 6.

	+12V	+5V	+3.3V	-12V	+5Vsb
Voltage limits.	±3%	±3%	±3%	±8%	±3%
Load Change Low Load	Min~70%Max	Min~30%Max	Min~30%Max	0A ~ 0.1A	0A ~ 0.5A
Load Change High Load	(Max-70%)~Max	(Max-30%)~Max	(Max-30%)~Max	0.2A ~ 0.3A	2.0A ~ 2.5A
Capacitive Load	6600uF	3300uF	3300uF	330uF	3300uF

Table 6. DC Output Transient Response

2.2.5. DC Output Voltage Hold-up Time

Criteria	REQUIRED	RECOMMENDED
Output Loading	100% of Full Load	80% of Full Load
Time (T5 + T6)	12 ms	17 ms

2.2.6 PCI-E 5_Power Excursion

PCI Express* CEM Add-in Card Power Excursion Limits Chart , shown in Figure.1

Power Excursion % of PSU Rated Size PSU ≤ 450 Watts & 12VHPWR Connector	Power Excursion % of PSU Rated Size PSU > 450 Watts & 12VHPWR Connector present	Time for Power Excursion (T _x)	Testing Duty Cycle
150%	200%	100 μs	5%
145%	180%	1 ms	8%
135%	160%	10 ms	12.5%
110%	150%	100 ms	25%
100%	100%	Infinite	---

Figure 1. PCIe* AIC and PSU Power Budget used for Peak Power Excursion

The DC output voltages are required to remain within the regulation ranges shown in Figure.2

Outputs Voltage	Voltage Range (V)		
	Min	Typical	Max
+5V	4.75	5.0	5.25
+3.3V	3.13	3.3	3.47
-12V	-13.2	-12.0	-10.8
+5VSB	4.75	5.0	5.25
+12V1	11.2	12.0	12.8
+12V2	11.2	12.0	12.8

- 5V and 3.3V voltage rails (ATX Multi-Rail power supplies only) start at 80% of full load criteria
- DC output voltage will stay within regulation of +5/- 7% during the step load changes(+12V Capacitive Load 6600uF)
- The 12VHPWR power connector delivers up to 55 A of continuous current to provide a maximum of 600 W of power to the Add-in Card on a 12 V Aux rail, are given in figure 3.

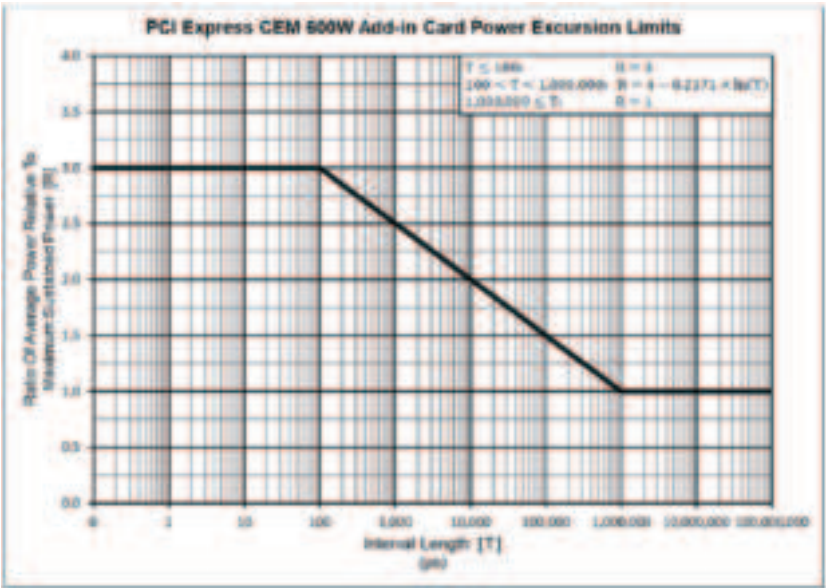
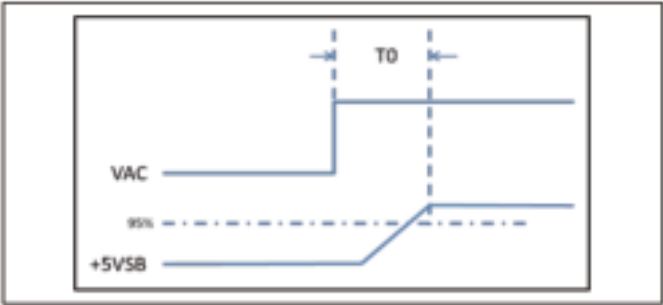
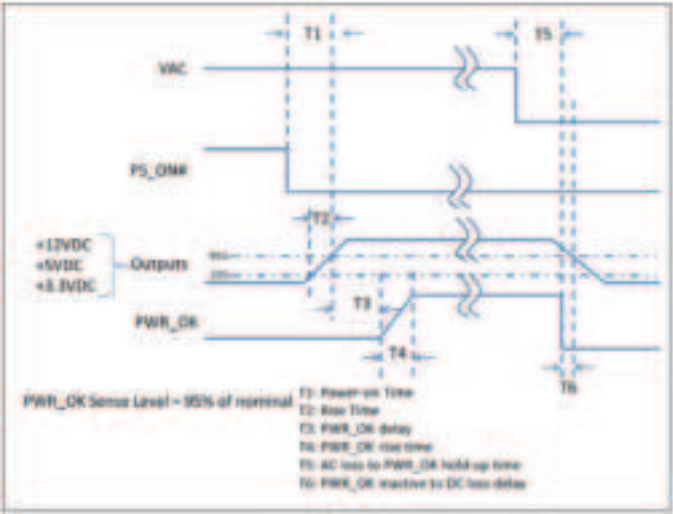


Figure 3. PCI Express* CEM Add-in Card Power Excursion Limits Chart

2.3. Timing / Housekeeping / control



+5Vsb shall have a power on time of 2 Seconds maximum after application of a valid AC line voltage.



Parameter	Description	Value		
		Required	Recommended for Non-Alternative Sleep Mode1	Recommended for Alternative Sleep Mode
T0	AC power on time	<2s		
T1	Power-on time			< 150ms
T2	Rise time	0.2 – 20 ms		
T3	PWR_OK delay			100 – 150 ms
T4	PWR_OK rise time	< 10 ms		
T5	AC loss to PWR_OK hold-up time	> 16 ms		
T6	PWR_OK inactive to DC loss delay	> 1 ms		

2.3.1. PWR_OK (Power Good Signal)

PWR_OK is a “power good” signal. It will be asserted high by the power supply to indicate that the +5V output is above the under voltage threshold listed in Table 2. of Section 2.2. PWR_OK will be de-asserted to a low state when +5V output voltage falls below under voltage threshold, or when AC power has been removed for a time sufficiently such that power supply operation cannot work normally. The electrical and timing characteristics of the PWR_OK signal are given in Table 7. and in figure 1.

Signal type	+5V TTL compatible
Logic level low	< 0.4 V while sinking 4 mA
Logic level high	Between 2.4 V and 5 V output while sourcing 200 µA
High-state output impedance	1 kΩ from output to common
Max Ripple/Noise	400 mV p-p

Table 7. PWR_OK Signal Characteristics

2.3.2. PS_ON (DC Soft Start)

PS_ON# is an active-low, TTL-compatible signal that allows a motherboard to remotely control the power supply in conjunction with features such as soft on/off, Wake on LAN*, or wake-on-modem. When PS_ON# is pulled to TTL low, the power supply should turn on the four main DC output rails: +12 VDC, +5 VDC, +3.3 VDC, and -12 VDC. When PS_ON# is pulled to TTL high or open-circuited, the DC output rails should not deliver current and should be held at zero potential with respect to ground. PS_ON# has no effect on the +5VSB output, which is always enabled whenever the AC power is present. Table 8 lists PS_ON signal characteristics.

	Min	Max
V _{IL} , Input Low Voltage	0.0V	0.8V
I _{IL} , Input Low Current (V _{in} = 0.4V)		-1.6mA
V _{IH} , Input high Voltage (I _{in} = -200uA)	2.0V	
V _{IH} , open circuit, I _{in} =0		-5.25V
Ripple/Noise		400 mV p-p

Table 8. PS_ON Signal Characteristics

2.3.3. +5Vsb (Standby Voltage Output)

+5Vsb is a standby voltage output that is active whenever the AC power is present. It provides a power source for circuits that must remain operational when the four main DC output rails are in a disabled state. Example uses include soft power control, Wake on LAN, wake on modem, intrusion detection, or suspend state activities. There is over current protection on the +5Vsb output to ensure the power supply will not be damaged if external circuits draw more current than the supply can provide.

2.3.4. Power-on Time

The power-on time is defined as the time from when PS_ON is pulled low to when the 12V1, +5V, and +3.3V output are within the regulation ranges specified in Section 2.2.1. The power-on time will be less than 150ms ($T1 < 150\text{ ms}$). +5Vsb has a power on time of two second max. after the valid AC Voltages applied.

2.3.5. Rise Time

The output voltage rise from $\leq 10\%$ of nominal to within the regulation ranges specified in section 2.2.1 within 0.2 ms to 20 ms ($0.2\text{ ms} \leq T2 \leq 20\text{ ms}$)

2.3.6. Power Sequencing

The +12V1 and +5V output levels are equal to or greater than the +3.3V output at all times during power-up and normal operation. The time between the +12V1 or +5V output reaching its minimum in-regulation level and +3.3V reaching its minimum in-regulation level is $\leq 20\text{ msec}$.

2.3.7. Overshoot at Turn-on / Turn-off

The output voltage overshoot upon the application or removal of the input voltage, or the assertion / de-assertion of PS_ON will be less than 10% above the nominal voltage.

2.3.8. Reset after Shutdown

If the power supply latches into a shutdown state because of a fault condition on its outputs, the power supply can return to normal operation only after the fault condition has been removed and the PS_ON has been cycled OFF/ON with a minimum OFF time of 1 second.

2.3.9. +5Vsb at AC Power-down

After AC power is removed, the +5Vsb standby voltage output will remain at its steady state value for the minimum hold-up time specified in Section 2.2.6 until the output begins to decrease in voltage. The decrease can be monotonic in nature, dropping to 0.0V. There are no other perturbations of this voltage at or following removal of AC power.

2.4. Output Protection

2.4.1. Over Voltage Protection

The power supply can provide latch-mode over voltage protection as defined in Table 9.

Output	Min.	Nom.	Max.	Unit
+12VDC	13.6	14.6	15.6	Volts
+5VDC	5.5	6.25	7.0	Volts
+3.3VDC	3.7	4.1	4.5	Volts

Table 9. Over Voltage Protection

2.4.2. Under Voltage Protection

The power supply can provide latch-mode Under voltage protection as defined in Table 10.

Output	Min.	Nom.	Max.	Unit
+12VDC	8.80	9.30	9.80	Volts
+5VDC	4.10	4.30	4.47	Volts
+3.3VDC	2.55	2.69	2.83	Volts

Table 10. Under Voltage Protection

2.4.3. Over Current Protection

The power supply can provide Over Current Protection as defined in Table 11.

Output	Min.	Max.
+12VDC	120%	145%
+5VDC	120%	150%
+3.3VDC	120%	150%

Table 11. Over Current Protection

2.4.4. Short-circuit Protection

The power supply will shut down and latch off for shorting the +12V, +5V, +3.3V, and -12V rails to return or any other rails. Shorts between main output rails and +5Vsb will not cause any damage to power supply. +5Vsb can be capable of being shorted indefinitely, but when the short is removed, the power supply will recover automatically or by cycling PS_ON. The power supply can be capable of withstanding a continuous short circuit to the output without damage or overstress to the unit under the input conditions specified in section 2.1.

2.4.5. Over Power Protection

Fold back at 120%~145% over peak load

2.4.6. OVER TEMPERATURE PROTECTION

Protection temperature is 60°C to 80°C at 115V and full load

2.4.7. No-load Operation

No damage or hazardous condition will occur with all the DC output connectors disconnected from the load. The power supply may latch into the shutdown state.

2.4.8. Isolation (High Voltage Withstand)

1800Vac for 1 minute

3. Environmental

The following subsections define recommended environmental specifications and test parameters. Based on the typical conditions to which an ATX 12V power supply may be subjected during operation or shipment.

3.1. Temperature

Operating	0°C to +50°C
Non-operating	-20°C to +70°C

3.2. Humidity

Operating	20% to 90% relative humidity (non-condensing)
Non-operating	5% to 95% relative humidity (non-condensing)

3.3. Altitude

Operating	0 to 0 to 16,404 ft (5000 meter)
Storage	0 to 50,000 feet

4. Electromagnetic Compatibility

The following subsections outline applicable product regulatory specifications for this power supply.

4.1. Emissions (Meet)

The power supply can comply with FCC Part 15 and EN55032: 2015 meeting Class B for both conducted and radiated emissions with a 3 dB margin.

4.2. Immunity (Meet)

The power supply can comply with EN 55035: 2017.

4.3. CE Testing (Meet)

The following standards are applied during the CE testing

EN 55032: 2015	Class B with 3dB margin minimum
EN 61000-3-2: 2014	Harmonic Current Measurement
EN 61000-3-3: 2013	Voltage Fluctuation and Flick Measurement
EN 55035: 2017, including	
IEC 61000-4-2: 2009	ESD – air discharge 8kV / ESD contact discharge 4kV
IEC 61000-4-3: 2010	Radiated, Radio Frequency Electromagnetic Field Immunity Test
IEC 61000-4-4: 2012	Electrical Fast Transient/Burst Immunity Test
IEC 61000-4-5: 2014	Surge Immunity Test – 2kV L/N to PE and 1kV L to N
IEC 61000-4-6: 2014	Immunity to Conducted Disturbances Induced by RF Fields
IEC 61000-4-8: 2010	Power Frequency Magnetic Field Immunity Test
IEC 61000-4-11: 2004	Voltage Dips and Short Interruptions Immunity Test

5. Reliability

5.1. Component De-rating

The derating process promotes quality and high reliability. All electronic components are designed with conservative derating for use in commercial and industrial environments.

5.2. Mean Time between Failures (MTBF)

100K hours minimum at full load 25°C

6. Safety (Meet)

6.1. Safety

cTUVus	UL62368-1
TUV	EN 62368-1
CB	IEC 62368-1

6.2. RoHS & REACH Compliance

The power supply meets the requirements of RoHS & REACH Compliance specified as followings:

- European Directive for Waste of electrical and electronic equipment (WEEE) 2012/19/EU
- European Directive for Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) 2011/65/EU
- ACPEIP, Administration on the Control of Pollution caused by Electronic Information Products (China RoHS), e.g. SJ/T 11363-2006 Requirements for Concentration Limits for Certain Hazardous Substances in EIP, SJ/T 11364-2006 Marking for Control of Pollution Caused by EIP
- Plastic and rubber parts are within the limits for 16 PAH and Benzopyrene polycyclic aromatic hydrocarbons
 - PAH (Polycyclic Aromatic Hydrocarbons):
 - 200mg/kg for components touched less than 30 seconds
 - 10mg/kg for components touched longer than 30 seconds
 - Benzopyrene are within the limits of:
 - 20mg/kg for components touched less than 30 seconds
 - 1mg/kg for components touched longer than 30 seconds
- Phthalate concentration is below 1000mg/kg for:
 - Diisononyl phthalate
 - Bis(2-ethylhexyl)phthalate
 - Di-n-octyl phthalate
 - Diisodecyl phthalate
 - Butyl benzyl phthalate
 - Bis(n-butyl)phthalate
- Polychlorinated biphenyl (PCB) concentration limits are less than two (2) parts per million (ppm). Regulation (EC) No 1907/2006 ... concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH): No substance of Very High Concern of the "Candidate List" exceeds more than 0,1 % of the global weight of the delivered item (without packaging of the item)

7. Mechanical

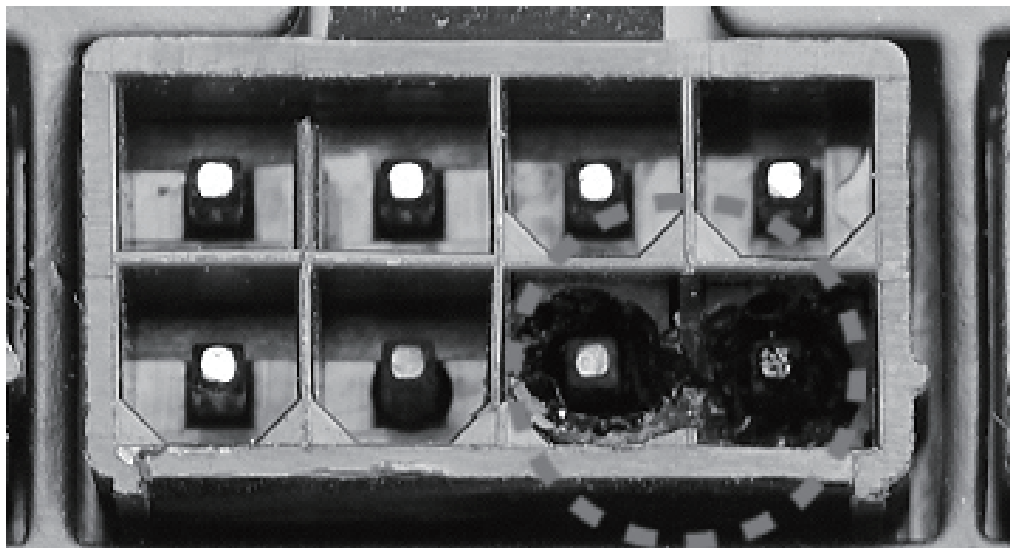
Dimension W x L x H = 150 x 180 x 86mm.

8. Fan Mode

- I: Low Speed mode
- II: Semi fanless mode
- III: Full Speed High Speed



9. POWER SUPPLY CONNECTOR OVERUSE DEFINITION



EN

Power supply connector overuse definition

A single PCIe 8pin cable and connector's maximum current rating is 12.5A, which is 150W (+12V x 12.5A). So SilverStone's warranty will not cover damages or malfunction resulting from the use of a graphics card or expansion card with a single PCIe 8pin connector that exceeds standard 225W total power draw (150W from PCIe 8pin connector + 75W from PCIe motherboard slot). Similarly, a graphics card or expansion card with dual PCIe 8pin connectors that exceed 375W total power draw (300W from two PCIe 8pin connectors + 75W from PCIe motherboard slot) will also not be covered under warranty.

Peripheral (molex) or SATA connector's maximum current rating is 5A, which is 60W (+12V x 5A) or 25W (+5V x 5A). Please ensure connected devices are operating under these limits. SilverStone's warranty will not cover damages or malfunction resulting from usages exceeding these connectors and their associated cables.

24pin motherboard connector's maximum current rating for its dual +12V metal pins are 5A each, which totals 120W (+12V x 5A x 2). Please ensure +12V drawing devices connected to the motherboard are operating under these limits. SilverStone's warranty will not cover damages or malfunction resulting from usages exceeding these connectors and their associated cables.

DE

Definition einer Überlastung des Netzanschlusses

Die maximale Stromstärke eines einzelnen 8-poligen PCIe-Kabels und Anschlusses beträgt 12,5 A, was 150 W (+12 V x 12,5 A) entspricht. Daher deckt die SilverStone-Garantie keine Schäden oder Fehlfunktionen durch den Einsatz einer Grafikkarte oder Erweiterungskarte mit einem einzigen 8-poligen PCIe-Anschluss ab, die die Standardleistungsaufnahme von insgesamt 225 W übersteigt (150 W vom 8-poligen PCIe-Anschluss + 75 W vom PCIe-Motherboard-Steckplatz). Ebenso wird die Verwendung einer Grafikkarte oder Erweiterungskarte mit zwei 8-poligen PCIe-Anschlüssen, die eine Leistungsaufnahme von insgesamt 375 W übersteigen (300 W von den beiden 8-poligen PCIe-Anschlüssen + 75 W vom PCIe-Motherboard-Steckplatz) nicht durch die Garantie abgedeckt.

Der maximale Nennstrom von Peripherie- (Molex) oder SATA-Anschluss beträgt 5 A, was 60 W (+12 V x 5 A) oder 25 W (+5 V x 5 A) entspricht. Bitte achten Sie darauf, dass verbundene Geräte unter diesen Grenzwerten arbeiten. Die Garantie von SilverStone deckt keine Schäden oder Fehlfunktionen aufgrund einer Nutzung ab, die diese Anschlüsse und ihre zugehörigen Kabel übersteigt.

Der maximale Nennstrom des 24-poligen Motherboard-Anschlusses für seine dualen +12-V-Metallkontakte beträgt jeweils 5 A, was insgesamt 120 W (+12 V x 5 A x 2) ergibt. Bitte stellen Sie sicher, dass mit dem Motherboard verbundene +12-V-Geräte unter diesen Grenzwerten arbeiten. SilverStones Garantie deckt keine Schäden oder Fehlfunktionen aufgrund einer Nutzung jenseits der Angaben dieser Anschlüsse und ihrer zugehörigen Kabel ab.

FR

Définition de l'utilisation excessive du connecteur d'alimentation électrique

Le courant nominal maximum d'un câble et d'un connecteur PCIe 8 broches unique est de 12,5 A, ce qui correspond à 150 W (+12 V x 12,5 A). La garantie de SilverStone ne couvre donc pas les dommages ou les dysfonctionnements résultant de l'utilisation d'une carte graphique ou d'une carte d'extension avec un connecteur PCIe 8 broches unique qui dépasse une consommation énergétique totale de 225 W standard (150 W provenant du connecteur PCIe 8 broches + 75 W provenant de l'emplacement de la carte mère PCIe). De même, une carte graphique ou une carte d'extension avec deux connecteurs PCIe 8 broches qui dépasse une consommation énergétique totale de 375 W (300 W provenant des deux connecteurs PCIe 8 broches + 75 W provenant de l'emplacement de la carte mère PCIe) ne sera également pas couverte dans le cadre de la garantie.

Le courant nominal maximum d'un périphérique (Molex) ou d'un connecteur SATA est de 5 A, ce qui correspond à 60 W (+12 V x 5 A) ou 25 W (+5 V x 5 A). Veuillez vous assurer que les appareils connectés fonctionnent dans ces limites. La garantie de SilverStone ne couvre pas les dommages ou les dysfonctionnements résultant d'utilisations dépassant ces connecteurs et leurs câbles associés.

Le courant nominal maximal des connecteurs 24 broches de la carte mère pour ses doubles broches métalliques +12 V est de 5 A chacun, ce qui représente au total 120 W (+12 V x 5 A x 2). Veuillez vous assurer que les dispositifs de tension +12 V connectés à la carte mère fonctionnent dans ces limites. La garantie de SilverStone ne couvre pas les dommages ou les dysfonctionnements résultant d'utilisations dépassant la capacité de ces connecteurs et de leurs câbles associés.

IT

Definizione di uso eccessivo del connettore di alimentazione

La corrente massima di un singolo cavo PCIe a 8 pin e del connettore è 12,5 A, corrispondente a 150 W (+12 V x 12,5 A). Pertanto, la garanzia di SilverStone non copre danni o malfunzionamenti derivanti dall'utilizzo di una scheda grafica o una scheda di espansione con un singolo connettore PCIe a 8 pin che supera l'assorbimento totale di 225 W (150 W da connettore PCIe a 8 pin + 75 W da slot PCIe). Analogamente, la garanzia non copre anche una scheda grafica o una scheda di espansione con doppi connettori PCIe a 8 pin che superano l'assorbimento totale di 375 W (300 W da doppi connettori PCIe a 8 pin + 75 W dalla scheda madre PCIe).

La corrente massima del connettore periferico (molex) o SATA è 5 A, corrispondente a 60 W (+12 V x 5 A) o 25 W (+5 V x 5 A). Assicurarsi che i dispositivi collegati funzionino entro questi limiti. La garanzia di SilverStone non copre danni o malfunzionamenti derivanti da uso eccessivo di questi connettori e dei relativi cavi.

La corrente massima del connettore a 24 pin per scheda madre per i suoi due pin di metallo +12 V è di 5 A ciascuno, per un totale di 120 W (+12 V x 5 A x 2). Assicurarsi che i dispositivi +12 V collegati alla scheda madre funzionino con questi limiti. La garanzia di SilverStone non copre danni o malfunzionamenti derivanti da uso eccessivo di questi connettori e dei relativi cavi.

ES

Definición de uso excesivo del conector de la Fuente de alimentación

La corriente máxima de un solo cable PCIe de 8 pines es 12,5A, lo que son 150W (+12V x 12,5A). Por tanto, la garantía de SilverStone no cubrirá daños o fallos provocados por el uso de una tarjeta gráfica o de expansión con un único conector PCIe de 8 pines que exceda el total estándar de 225W (150W del conector PCIe de 8 pines + 75W del zócalo PCIe de la placa base). De igual modo, una tarjeta gráfica o de expansión con conectores duales PCIe de 8 pines que superen 375W de potencia (300W de los dos conectores PCIe de 8 pines + 75W del zócalo de la placa base) tampoco será cubierta por la garantía.

La corriente máxima del conector de periféricos (molex) o SATA es 5A, que son 60W (+12V x 5A) o 25W (+5V x 5A). Por favor, asegúrese de que los dispositivos conectados funcionan dentro de estos límites. La garantía de SilverStone no cubrirá daños o fallos a resultados de un uso excesivo de estos conectores y sus cables asociados.

La corriente máxima del conector de 24 pines de la placa base para sus pines de metal duales de +12V es de 5A cada uno, para un total de 120W (+12V x 5A x 2). Por favor, asegúrese de que los dispositivos de +12V conectados a la placa base funcionen dentro de estos límites. La garantía de SilverStone no cubrirá daños o averías a resultados de un uso excesivo para estos conectores y sus cables asociados.

RU

Определение чрезмерной нагрузки на коннектор блока питания

Один кабель и коннектор PCIe 8pin поддерживает ток 12,5А, что равно 150Вт (+12В x 12,5А). Таким образом, гарантийные обязательства SilverStone не будут действовать если вы используете видеокарту или другую карту расширения с одним коннектором PCIe 8pin, которые превышают стандартную общую потребляемую мощность 225Вт (150Вт через коннектор PCIe 8pin + 75Вт через слот PCIe материнской платы). Аналогично, видеокарта или другая карта расширения с двумя коннекторами PCIe 8pin, которые превышают общую потребляемую мощность 375Вт (300Вт через коннектор PCIe 8pin + 75Вт через слот PCIe материнской платы), также не будут покрываться гарантией.

Максимальный номинальный ток периферийного (molex) или SATA разъёма составляет 5А, что равно 60Вт (+12В x 5А) или 25Вт (+5В x 5А). Пожалуйста, убедитесь, что подключаемые устройства работают в этих пределах. Гарантия SilverStone не будет распространяться на неисправности, возникающие в результате использования этих коннекторов или подключаемых к ним кабелей.

Максимальный номинальный ток 24pin коннектора материнской платы для его двойных металлических контактов +12В составляет 5А на каждый, что равно 120Вт (+12В x 5А x 2). Пожалуйста, убедитесь, что устройства, подключённые к линии +12В, работают в этих пределах. Гарантия SilverStone не будет распространяться на неисправности, возникающие в результате использования этих коннекторов или подключаемых к ним кабелей.

KR

전원 공급 커넥터 과용 정의

단일한 PCIe 8핀 케이블 및 커넥터의 최대 전류 정격은 12.5A로서 전력으로 환산하면 150W(+12V x 12.5A)입니다. SilverStone의 보증에서는 표준 225W의 총 소비 전력 (PCIe 8핀 커넥터의 150W와 PCIe 메인보드 슬롯의 75W의 합)을 초과하는 단일 PCIe 8핀 커넥터 탑재 그래픽 카드나 확장 카드를 사용하여 발생하는 손상 또는 오작동을 보상하지 않습니다. 이와 마찬가지로 375W의 총 소비 전력(PCIe 8핀 커넥터 2개의 300W와 PCIe 메인보드 슬롯의 75W의 합)을 초과하는 듀얼 PCIe 8핀 커넥터 탑재 그래픽 카드나 확장 카드를 사용해도 보증에서 보상해주지 않습니다.

주변장치(molex) 또는 SATA 커넥터의 최대 전류 정격은 5A로서 전력으로 환산하면 60W(+12V x 5A) 또는 25W(+5V x 5A)입니다. 연결된 장치는 이러한 제한 하에서만 작동시켜야 합니다. SilverStone의 보증에서는 이러한 커넥터 및 이와 연결되는 케이블의 정격을 초과하여 사용함으로써 발생하는 손상이나 오작동을 보상하지 않습니다.

듀얼 +12V 금속 핀에 사용되는 24핀 메인보드 커넥터의 정격 전류는 5A이며, 각각 합계가 120W(+12V x 5A x 2)입니다. 메인보드에 연결된 +12V 장치가 해당 한계 미만으로 작동되도록하십시오. SilverStone은 이 커넥터나 관련 케이블의 한계를 초과해서 사용함으로써 발생하는 손상이나 고장에 대해서 보장하지 않습니다.

JP

電力供給コネクタの使用限度超過に関する説明

単一のPCIe 8ピンケーブルおよびコネクタの最大定格電流は12.5Aで150W (+12V x 12.5A)となります。それで定格225W合計電力消費(Pcie 8ピンコネクタからの150W + PCIeマザーボードスロットからの75W)を超える、単一PCIe 8ピンコネクタ装備のグラフィックスカードまたは拡張カード使用によって生じた損傷や故障の場合、SilverStoneの製品保証は適用外となります。同様に、375W合計電力消費(2基のPCIe 8ピンコネクタからの300W + PCIeマザーボードスロットからの75W)を超える、デュアルPCIe 8ピンコネクタ装備のグラフィックスカードまたは拡張カード使用によって生じた損傷や故障の場合も、製品保証適用外となります。

周辺用 (molex) または SATA コネクタの最大定格電流は5Aで、60W (+12V x 5A) または 25W (+5V x 5A) となります。接続された装置がこれら限度以内で動作することを確認してください。これらコネクタおよび関連ケーブルの定格を超える使用法で生じた損傷や故障については、SilverStone製品保証対象外となりますのでご注意ください。

24ピンマザーボードコネクタのデュアル+12V金属製ピンに対する最大定格電流はそれぞれ5Aなので合計は120W (+12V x 5A x 2) となります。接続される+12V入力のデバイスが、これら上限以内で動作することをご確認ください。これらコネクタおよび関連ケーブルでの限界を超えた使用で生じた損傷または故障は、SilverStoneによる製品保証対象外となります。

CN

电源供应器接头过度使用定义

单条PCIe 8pin电源线与接头的最大额定电流为12.5A，瓦特数150W (+12V x 12.5A)。因此，银欣的电源保固不包括用于单条PCIe 8pin接头之显卡/扩充卡，在超过标准225W总功耗范围所造成的损坏或故障（150W 的PCIe 8pin接头+ 75W的主板PCIe插槽）。以此类推，若具备双PCIe 8pin接头的显卡/扩充卡，负载一但超过375W总功耗，视同不属保固范围内（300W来自两个PCIe 8pin接头 + 75W的主板PCIe插槽）。

大4pin (molex) 或SATA接头的最大额定电流为5A，即60W (+12V x 5A) 或25W (+5V x 5A)。请确保连接的设备皆低于此限制下运行。银欣不保固超出电源供应器接头及其相关线材之使用负载上限所造成的损坏或故障。

24pin主板接头的双+12V金属引脚最大额定电流为5A，即120W (+12V x 5A x 2)。请确保连接的+12V设备皆低于此限制下运行。银欣不保固超出电源供应器接头及其相关线材之使用负载上限所造成的损坏或故障。

TW

電源供應器接頭過度使用定義

單條PCIe 8pin電源線與接頭的最大額定電流為12.5A，瓦特數150W (+12V x 12.5A)。因此，銀欣的電源保固不包括用於單條PCIe 8pin接頭之顯卡/擴充卡，在超過標準225W總功耗範圍所造成的損壞或故障（150W 的PCIe 8pin接頭+ 75W的主機板PCIe插槽）。以此類推，若具備雙PCIe 8pin接頭的顯卡/擴充卡，負載一但超過375W總功耗，視同不屬保固範圍內（300W來自兩個PCIe 8pin接頭 + 75W的主機板PCIe插槽）。

大4pin (molex) 或SATA接頭的最大額定電流為5A，即60W (+12V x 5A) 或25W (+5V x 5A)。請確保連接的設備皆低於此限制下運行。銀欣不保固超出電源供應器接頭及其相關線材之使用負載上限所造成的損壞或故障。

24pin主機板接頭的雙+12V金屬針腳最大額定電流為5A，即120W (+12V x 5A x 2)。請確保連接的+12V設備皆低於此限制下運行。銀欣不保固超出電源供應器接頭及其相關線材之使用負載上限所造成的損壞或故障。

TH

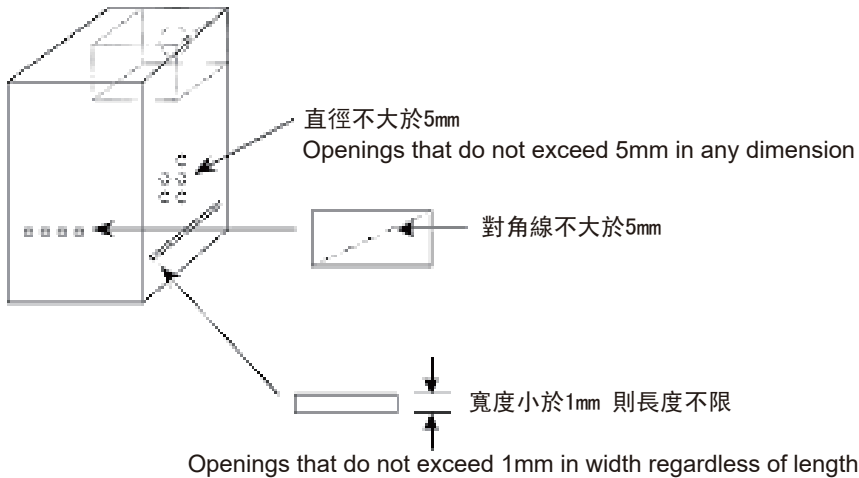
ขีดจำกัดการรองรับการใช้งานของหัวต่อจากพาวเวอร์ซัพพลาย

สำหรับหัวเชื่อมต่อสายเคเบิล PCIe 8 พินสามารถรองรับกระแสได้สูงสุด 12.5 แอมป์หรือหน่วยถึง 150 วัตต์ (+12V x 12.5A) ดังนั้นการรับประกันจากทาง SilverStone จะไม่ครอบคลุมถึงตามเสียหายหรือความผิดปกติซึ่งเกิดขึ้นกับกราฟิกการ์ดรวมถึงการเสียหายตามยาวที่ใช้งานหัวเชื่อมต่อ PCIe 8 พิน ซึ่งนับเป็นการใช้พลังงานรวมกันที่สูงเกินกว่ามาตรฐานที่กำหนดคือ 225 วัตต์ (150 วัตต์ จาก PCIe 8 พิน + 75 วัตต์ จากสล็อต PCIe บนเมนบอร์ด) อันรวมถึงการพิจารณาการเสียหายตามยาวที่ไม่ใช่ตัวเคเบิล PCIe 8 พินจำนวน 2 ชุดซึ่งมีการใช้พลังงานทั้งสิ้น 375 วัตต์ (300 วัตต์ จากหัว PCIe 8 พิน 2 ชุด + 75 วัตต์ จากสล็อต PCIe บนเมนบอร์ด) ซึ่งไม่ครอบคลุมเช่นกัน

ภายใต้การรับประกัน หัวเชื่อมต่อ Peripheral หรือ Molex 4 พินและ SATA ไม่สามารถรองรับกระแสได้สูงสุด 5 แอมป์หรือหน่วยถึง 60 วัตต์ (+12V x 5A) หรือ (+5V + 5A) กรุณาใช้ให้ว่าอุปกรณ์ที่ใช้งานมีการใช้พลังงานไม่เกินกว่าขีดจำกัดที่รองรับ ดังนั้นการรับประกันจากทาง SilverStone จะไม่ครอบคลุมถึงตามเสียหายหรือความผิดปกติจากอุปกรณ์ที่เชื่อมต่อซึ่งมาจากตัวสายเชื่อมต่อซึ่งมีการใช้พลังงานเกินกว่าขีดจำกัด

กระแสไฟฟ้าสูงสุดของหัวต่อเมนบอร์ด 24 พิน สำหรับพินสี: +12V ดูดเฉลี่ยมีค่า 5A ซึ่งรวมทั้งหมดเป็น 120W (+12V x 5A x 2) โปรดตรวจสอบให้แน่ใจว่าอุปกรณ์ของคุณดึงพลังงาน +12V ที่เชื่อมต่อกับเมนบอร์ดสามารถทำงานภายใต้ขีดจำกัดเหล่านี้ได้ การรับประกันของ SilverStone ไม่ครอบคลุมตามเสียหาย หรือจากการเสียที่เป็นผลจากการใช้เกินขีดจำกัดของหัวต่อสายเคเบิลที่ใช้เชื่อมต่อเหล่านี้

1. 為了保護使用者及防火的目的，安裝此交換式電源供應器時，必須安裝於符合下列各項要求的外殼中，並且安裝妥善後，才可接上電源。
- 1-1. 外殼材質須為防火外殼。外壳材质须为防火外壳。
- 1-2. 外殼的上方及側邊之圓形開孔，最大內徑不可大於5mm。
- 1-3. 外殼的上方及側邊之長條型開孔，對角線距離不可大於5mm；若寬度小於1mm，則長度不受限制。
- 1-4. 外殼底部不可有開孔。外壳底部不可有开孔。



2. 本產品輸出含有危險能量，為避免操作時發生危險，須於裝入系統機殼並將所有設備安裝妥當後才可開啟電源。
3. 本產品之電源輸出非屬電力限制型電源，請連接使用具防火外殼之周邊，以避免火災危險發生。

BSMI ROHS 資訊
<http://www.silverstonetek.com/downloads/PSU/RSD.pdf>

开关电源供应器 有毒有害物质/元素及其化学含量表

部件名称	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
外壳	○	○	○	○	○	○
接头	○	○	○	○	○	○
风扇	○	○	○	○	○	○
电子卡	○	○	○	○	○	○
线材	○	○	○	○	○	○
螺丝	○	○	○	○	○	○
包材	○	○	○	○	○	○

本表格依据SJ/T 11364的规定编制

- ：表示该有毒有害物质在该部件所有均质材料中的含量均在GB/T 26572 规定的限量要求以下。
- ×：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出GB/T 26572 规定的限量要求。



产品合格证

质检员：杨叶
生产日期：见产品条码

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received,
including interference that may cause undesired operation.

Model (on safety):SST-AX1350MCTI-A

Model (on safety):SST-AX1650MCTI-B

the power supply is only suitable for Information Technology & Audio/Video equipment.

※付属の電源コードは当該製品専用です。他の機器に使用しないでください。

Please refer to SilverStone website for latest specifications updates.

SilverStone Technology Co., Ltd.

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support@silverstonetek.com

NO. G11250670