Desktop PC Power Supply PCS-250-H11

Model	Description	Stock
PCS-250-H11	———	Standard stock

■Model Name Coding

PCS - 250 - H11

① ② ③

1. Series name
2. Output power
3. Modification code

Features

- AC input voltage is manually selectable system for 115V and 230V, and min. input voltage is secured for down to 90 VAC.
- With AC outlet

Still keeping on producing !

- AT specification power supply is almost discontinued.
- Can be adopted as alternatives for overseas power supplies whose reliability is poor.
- For industrial use, AT power supply is still requested.

Nipron has continued to provide AT power supplies with superior reliability, safety, and secureness for long time, and we will.

You do NOT have to worry.

Refer to “Product Page Guideline” on p.13

Safety standard / Approval	UL	CSA	EN	CE	CCC
Reliability Grade	HFA	FA	HOA	OA	

Function

DC start | RS 232C | USB | TTL | PFC | Silence | 5VSB FAN | TSFC FAN | Connection | RoHS

Input

AC input	90 - 132V, 180 - 264V (with a switch)

Output

Output voltage	*+5V*	*+12V*	*-5V*	*-12V*
Max. current / max. power (continuous)	30A	12A	0.5A	0.5A
	Total 220W			
	Total 228.5W			
Peak current / peak power (3 minutes max.)	30A	12A	0.5A	0.5A
	Total 245W			
	Total 253.5W			
Min. current	2.0A	0.5A	0A	0A

Dimensions

W×H×D (mm)	150×86×140 (PS/2 size)

Output connector

Main 20+4pin | Main 24pin | Main 20pin | AT | AUX | 12V 4pin | 12V 8pin | PCI-E 6pin | PCI-E 6+2pin | HDD | S-ATA | FDD

General Specification Condition: at normal temperature and humidity unless otherwise specified

	Items		Specification				Measurement conditions, etc.
AC Input	Rated Voltage		115 VAC (90 - 132 VAC) / 230 VAC (180 - 264 VAC)				Shifting with a switch
	Input Frequency		50 / 60Hz				47 - 63Hz
	Efficiency		70% typ. *Characteristic data: Fig.1				At rated input/output (AC outlet output shall not be used)
	Power Factor		*Characteristic data: Fig.2				
	Inrush Current		50A peak (100 VAC), 100A peak (240 VAC) *Characteristic data: Fig.3				At rated output
	Input VA		550VA typ. *Characteristic data: Fig.2				At rated input/output (AC outlet output shall not be used)
Output	Rated Voltage		+5V	+12V	-12V	+5VSB	
	Rated Current		20A	10A	0.5A	0.5A	
	Max. Current / Power		30A	12A	0.5A	0.5A	Max. output power: 228.5W
			220W max.				
	Peak Current / Power		30A	12A	0.5A	0.5A	Peak output power: 253.5W Time: 3 minutes or less
			245W max.				
	Min. Current		2.0A	0.5A	0A	0A	
	Total Voltage Accuracy (%)		±6 max.	±13 max.	±6 max.	±6 max.	Total accuracy of temperature, input, and load fluctuations
	Max. Ripple Voltage (mVp-p)		50 max.	120 max.	50 max.	120 max.	Measured on the test board with a capacitor (47μF) connected. The test board shall be separated from the load wires and within 150mm from the output terminal *Characteristic data: Fig.14
	Max. Spike Voltage (mVp-p)		100 max.	170 max.	100 max.	170 max.	
Protection	Overcurrent Protection	OCP Point (A)	31 min.	12.5 min.	0.55 min.	0.55 min.	All other outputs are at rated input/output. However, +12V load is 8A at +5V measurement
		Method	Hold down current limiting → Blocking oscillation		Fold back current limiting	Fold back current limiting	
		Recovery	Automatic recovery				
	Overvoltage Protection	OVP Point (V)	5.6 - 7.0	-	-	-	
		Method	All outputs shutdown	-	-	-	
		Recovery	Reclosing AC input (90 sec min. interval)				
	Overheating Protection		Equipped				Reclosing AC input after energization for recovery
Environment	Operating Temp. / Humidity		0 to 40°C / 20 to 90%				No condensation
	Storage Temp. / Humidity		-20 to 75°C / 10 to 95%				No condensation
	Vibration		Displacement amplitude: 0.15mm (10-55Hz), Sweep cycles: 10, Test duration: 30 minutes each axis				At no operation
	Mechanical Shock		Acceleration of 98m/s² for 20ms one time each in the X, Y and Z directions. No malfunction, damage, loosening or coming-off				At no operation
Insulation	Dielectric Strength		AC input - DC output/FG: 1500 VAC for 1 minute				Cut-off current: 20mA max.
	Insulation Resistance		AC input - DC output/FG and DC output - FG: 50MΩ min.				At 500 VDC
	Leakage Current		3.5mA min. *Characteristic data: Fig.4				YEW. TYPE3226 (1kΩ) or equivalent
EMC	Line Noise Immunity		1200V min. (pulse width: 100/800ns, repetitive cycle: 30-100Hz)				No fluctuation of DC output or malfunction
	Electrostatic Discharge		EN61000-4-2 compliant				
	Radiated, Radio-Frequency EM Field		EN61000-4-3 compliant				
	Fast Transient Burst		EN61000-4-4 compliant				
	Lightning Surge		EN61000-4-5 compliant				
	RF Conducted Immunity		EN61000-4-6 compliant				
	Magnetic Field Immunity		EN61000-4-8 compliant				
	Voltage Dip / Regulation		EN61000-4-11 compliant				
	Conducted Emission		VCCI-A, FCC-A compliant *Characteristic data: Fig.5 and 6				Measured by single unit
Others	Safety Standard		IEC60950 compliant				
	Cooling System		Forced air cooling				
	Output Grounding		Capacitor grounding				
	Output Hold-up Time		PWR_OK holds up 10ms min. after AC failure *Characteristic data: Fig.11				At rated output
	Reliability Grade		HOA				Follow our standard
	Weight		1.5 kg typ.				
	Warranty		1 years after delivery. If any faults belong to us, the defective unit shall be repaired or replaced at our cost.				Except for errors caused by operation not listed

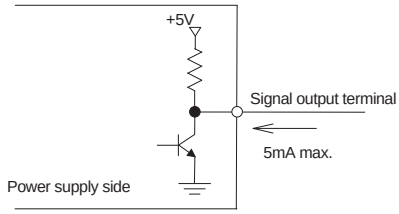
Signal Input / Output Specification Condition: at normal temperature and humidity unless otherwise specified

	Items	Specification	Note
Output Signal	Normal Output Signal (PWR_OK)	'H' signal is delivered when the +5V output is normal (detection delay time: 100 - 500ms).	The pin 1 of P1 connector

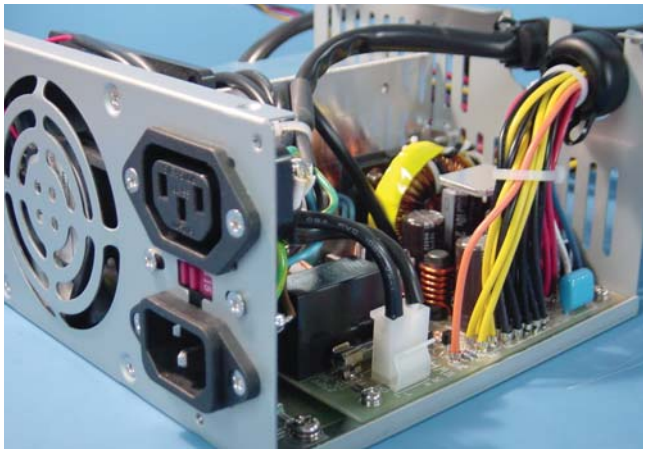
Signal Circuit

Output Signal Circuit

(PWR_OK)

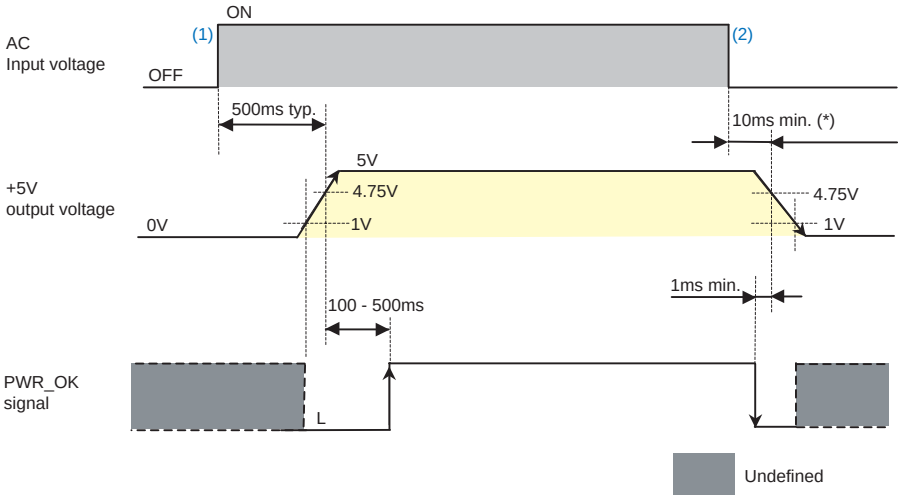


Internal Structure



Note: Single-sided PCB with through-holes is adopted to avoid solder cracks.

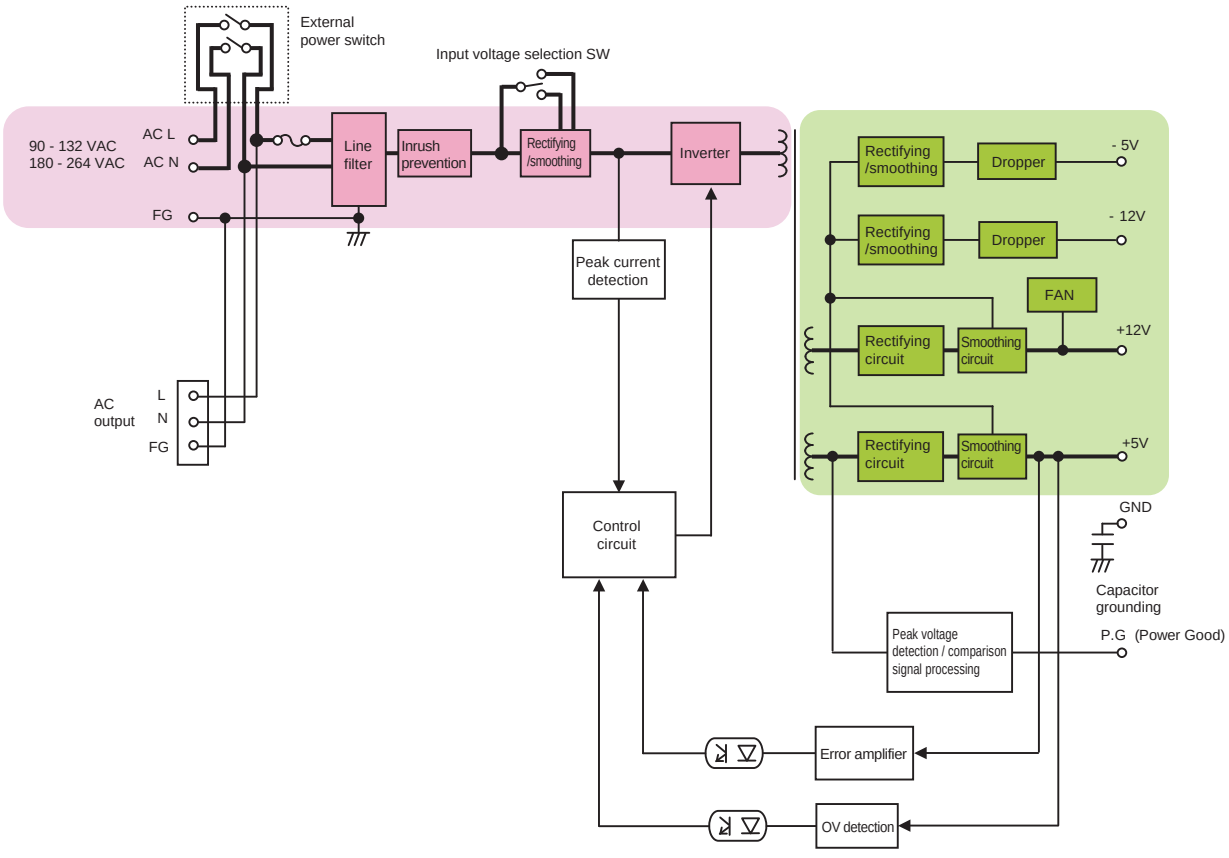
Sequence Diagram



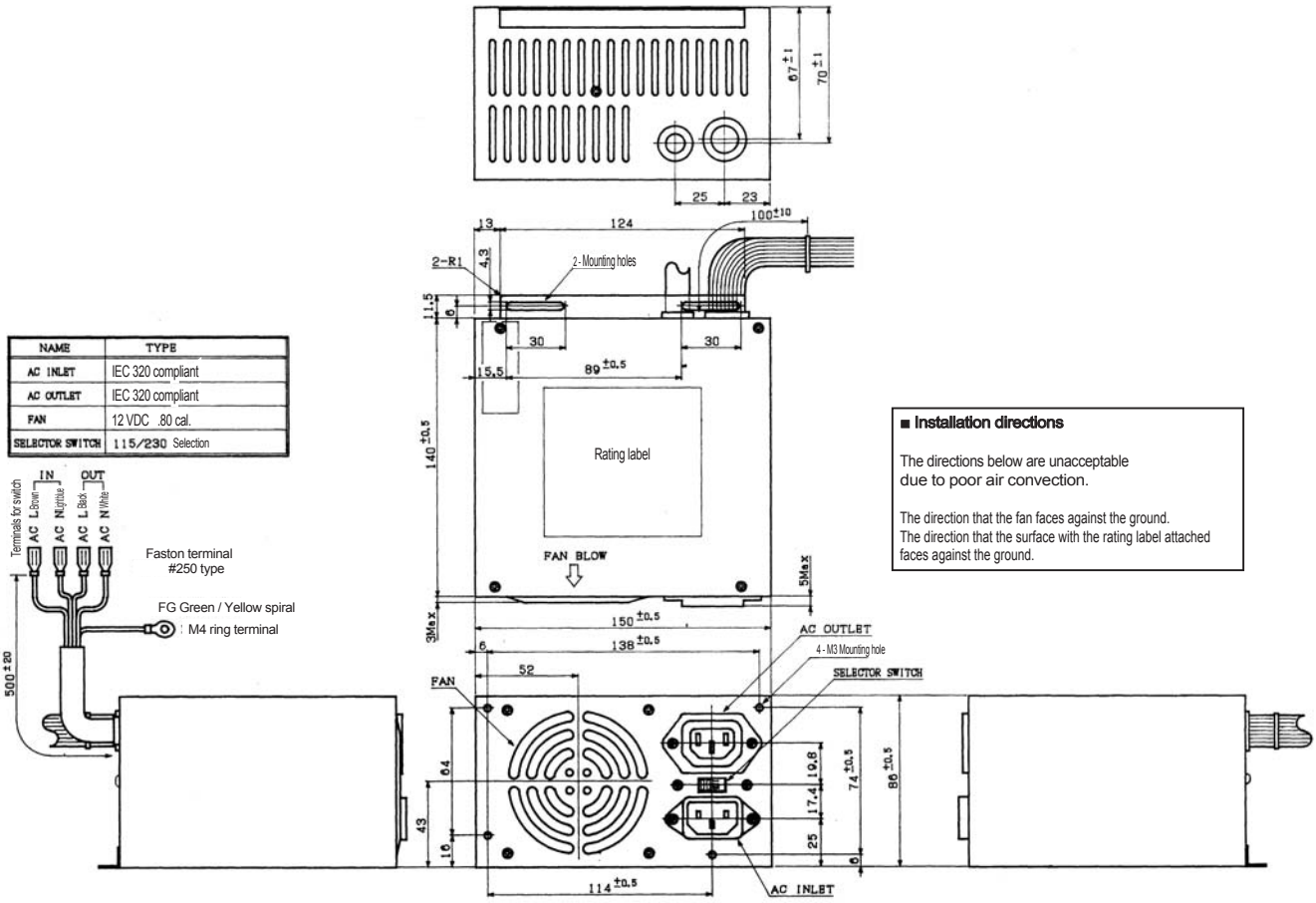
(*) At 115 / 230 VAC input and rated load for all outputs. Also, this period shall be 20ms min. with total output of 150W (resistor load).

(1) +5V starts up 500ms typ. after AC is turned on. Also, PWR_OK goes to 'H' 100 - 500ms after +5V has started up.
(2) +5V shuts down 10ms or longer after blackout, and PWR_OK goes to 'L' 1ms or earlier than that.

Block Diagram



Outline Drawing

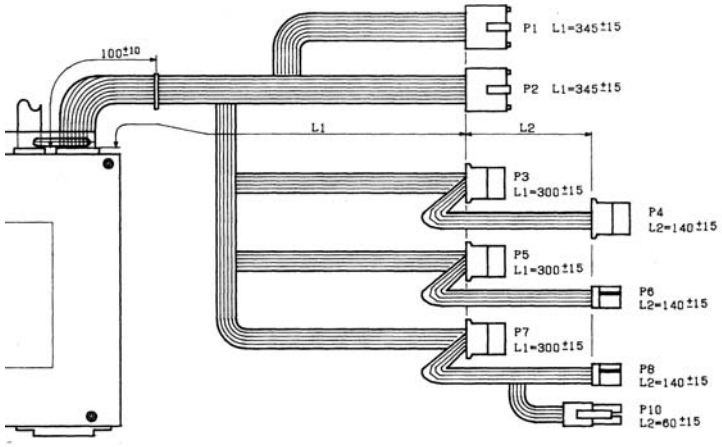


■ **Installation directions**

The directions below are unacceptable due to poor air convection.

The direction that the fan faces against the ground.
The direction that the surface with the rating label attached faces against the ground.

Output Harness



CN NAME	PIN No.	FUNCTION	WIRE COLOR	WIRE TYPE	CONNECTOR TYPE
P1	1	PWR_OK	ORANGE	UL1007 AWG#18	Housing : 8500-064(ALEX) or CI5306S0004 or equivalent Terminal : 23T-6204(ALEX) or CI51T031BE0 or equivalent
	2	+5V	RED		
	3	+12V	YELLOW		
	4	-12V	BLUE		
	5	COM	BLACK		
	6	COM	BLACK		
P2	1	COM	BLACK	UL1007 AWG#18	Housing : 8500-061(ALEX) or CI5306S0001 or equivalent Terminal : 23T-6204(ALEX) or CI51T031BE0 or equivalent
	2	COM	BLACK		
	3	-5V	WHITE		
	4	+5V	RED		
	5	+5V	RED		
	6	+5V	RED		
P3,P4 P5,P7	1	+12V	YELLOW	UL1007 AWG#18	Housing : 8981-4P(Molex) or equivalent Terminal : 8980-3CorL(Molex) or equivalent
	2	COM	BLACK		
	3	COM	BLACK		
	4	+5V	RED		
P6 P8	1	+5V	RED	UL1007 AWG#22	Housing : 171822-4(AMP) or equivalent Terminal : 170204-1(AMP) or equivalent
	2	COM	BLACK		
	3	COM	BLACK		
	4	+12V	YELLOW		
P10	1	COM	BLACK	UL1007 AWG#22	Housing : ELP-02V(JST) or equivalent Terminal : SLF-01T-1.3E(JST) or equivalent
	2	+12V	YELLOW		

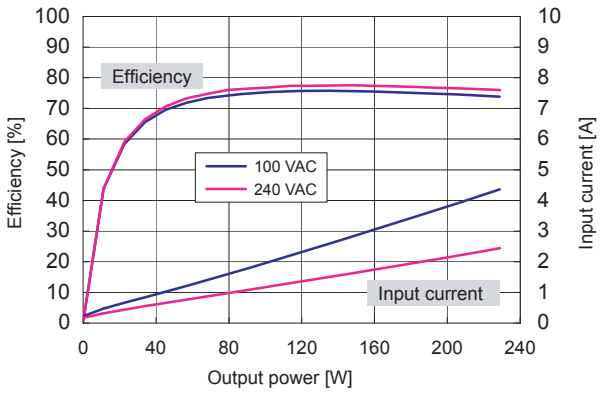
Optional Components Sold Separately

Cable			
Picture	*Model*	*Type*	*Description*
	WH2753	AC power cord	125 VAC 12A [PSE]
	WH2753-02	AC power cord	125 VAC 12A (tracking resistance type) [PSE]

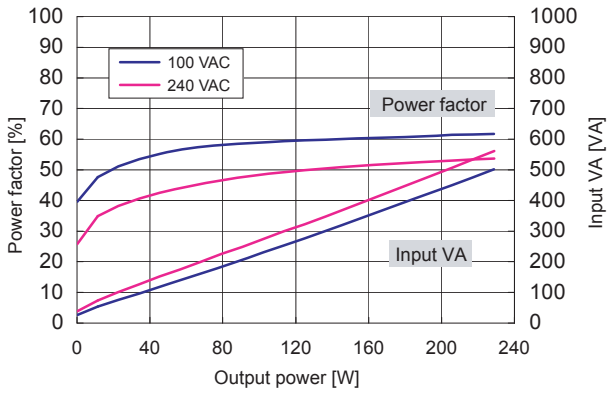
Other Optional Components			
Model	*Description*	*Model*	*Description*
WH2812	PCI-E 6-pin connector conversion harness	WH5105	12V 4-pin connector conversion harness (80mm)
		WH5105-02	12V 4-pin connector conversion harness (320mm)

Characteristics Data (Examples of actual measurement)

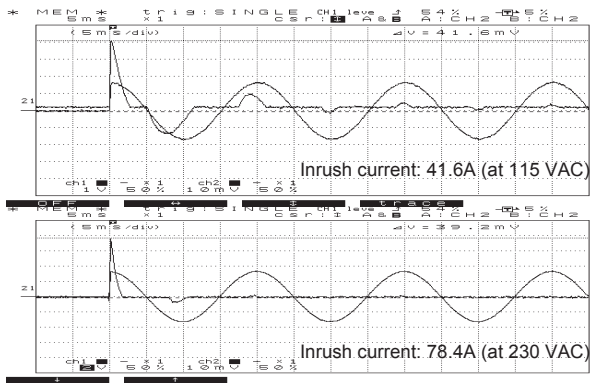
● Fig.1 Efficiency / Input Current vs. Output Power



● Fig.2 Power Factor / Input VA vs. Output Power



● Fig.3 Inrush Current



● Fig.4 Leakage Current

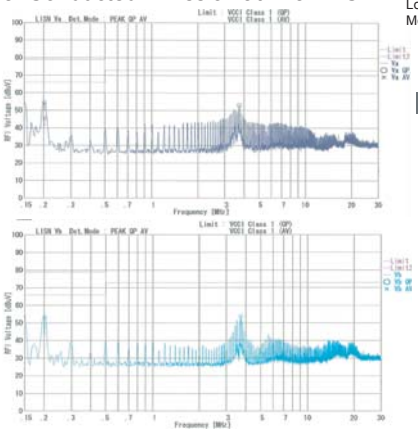
Input: 100 / 115 / 230 / 240 VAC
Load: Rated and min. load

	Rated load	Min. load
100 VAC	0.50mA	0.55mA
115 VAC	0.58mA	0.62mA
230 VAC	0.80mA	0.85mA
240 VAC	0.84mA	0.89mA

● Fig.5 Conducted Emission at 115 VAC

Input: 115 VAC
Load: Rated
Mode: Peak

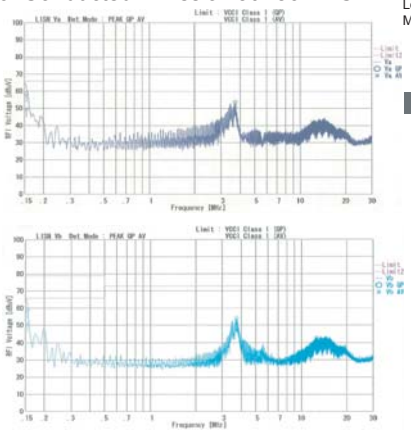
VCCI Class A



● Fig.6 Conducted Emission at 230 VAC

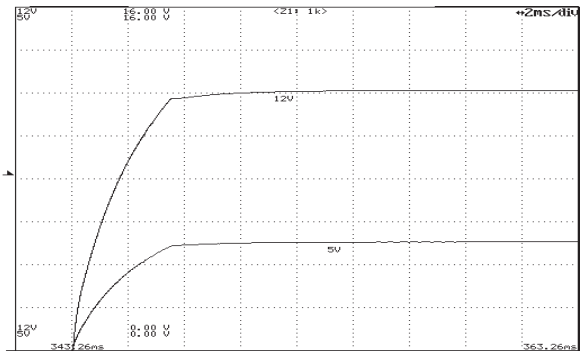
Input: 230 VAC
Load: Rated
Mode: Peak

VCCI Class A



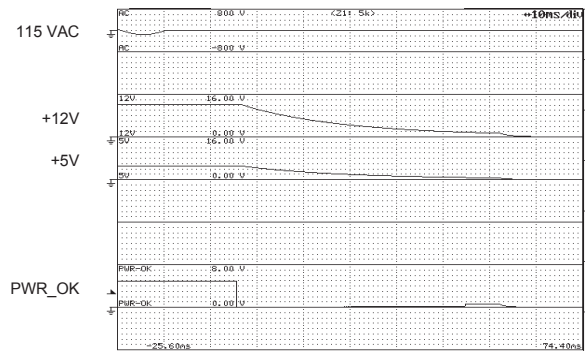
● Fig.7 Rising Characteristics at 115 VAC

Input: 115 VAC
Load: Rated
Time axis: 2ms/DIV



● Fig.8 Falling Characteristics at 115 VAC when REMOTE goes Off

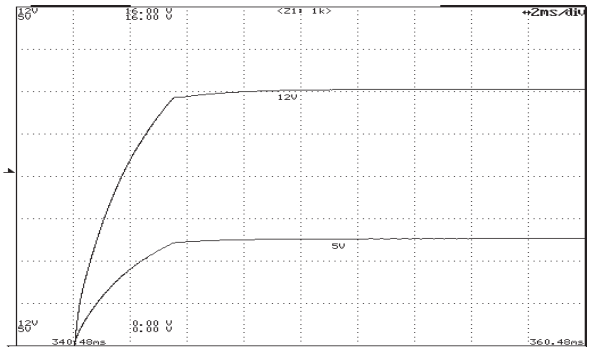
Input: 115 VAC
Load: Rated
Time axis: 10ms/DIV



Characteristics Data (Examples of actual measurement)

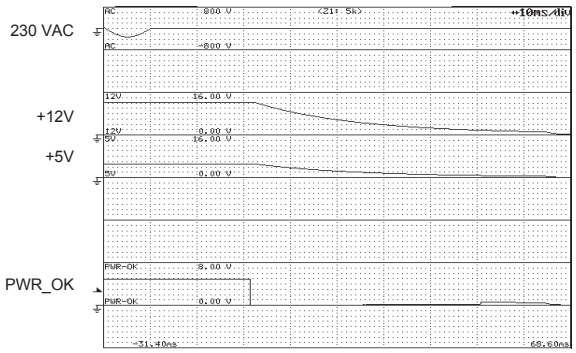
● Fig.9 Rising Characteristics at 230 VAC

Input: 230 VAC
Load: Rated
Time axis: 2ms/DIV



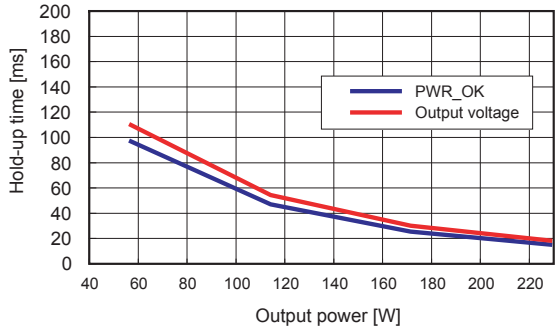
● Fig.10 Falling Characteristics at 230 VAC when REMOTE goes Off

Input: 230 VAC
Load: Rated
Time axis: 10ms/DIV



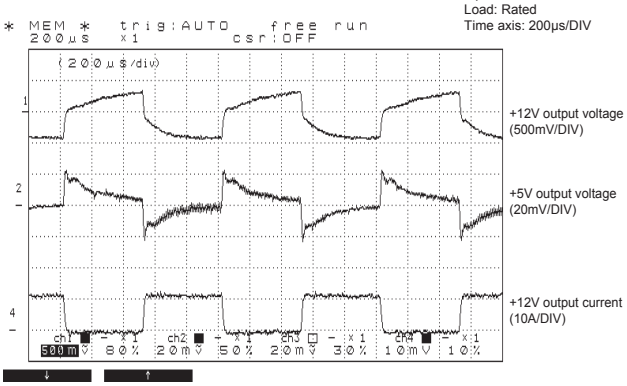
● Fig.11 Output Hold-up Time vs. Output Power

PWR_OK: the point that PWR_OK signal goes to "L"
Output voltage: the point any output voltage decreases to 95% except +5VSB



● Fig.12 Dynamic Load Fluctuation Characteristics at 1kHz

Input: 115 VAC
Load: Rated
Time axis: 200μs/DIV



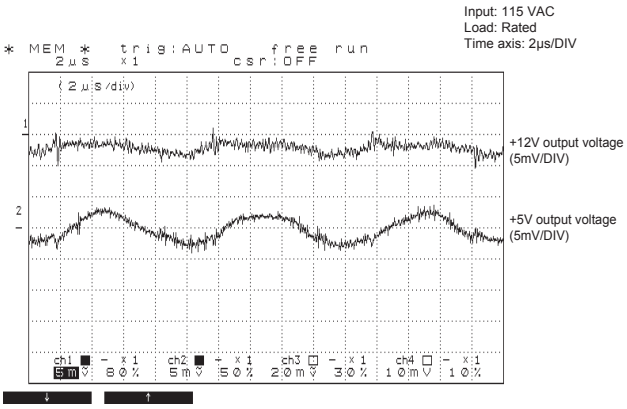
● Fig.13 Output Voltage Regulation

Output	Min. load	Rated load	Peak load
+12V output	0.5A	10A	12A
+5V output	2A	20A	30A

AC input voltage	85 VAC	100 VAC	132 VAC	176 VAC	240 VAC	264 VAC
+12V output (min. load)	11.841 V	11.838 V	11.841 V	11.850 V	11.853 V	11.856 V
+12V output (rated load)	12.169 V	12.204 V	12.223 V	12.195 V	12.184 V	12.186 V
+12V output (peak load)	11.872 V	12.144 V	12.158 V	12.121 V	12.116 V	12.117 V
+5V output (min. load)	5.138 V	5.138 V	5.138 V	5.138 V	5.138 V	5.138 V
+5V output (rated load)	5.009 V	5.031 V	5.029 V	5.032 V	5.033 V	5.033 V
+5V output (peak load)	4.960 V	4.966 V	4.965 V	4.968 V	4.969 V	4.969 V

● Fig.14 Ripple and Spike Voltage

Input: 115 VAC
Load: Rated
Time axis: 2μs/DIV



● Fig.15 Ambient Temperature vs. Expected Service Life

■ Electrolytic capacitors

Input: 115 VAC
Load: Rated
Operating time: 24 consecutive hours

Intake air temp.	20°C	30°C	40°C
Expected service life (yr)	approx. 15	approx. 7.3	approx. 3.6

※ Lifetime shall be 15 years at longest due to deterioration of sealing plates.

■ Fan

Ambient temp.	20°C	30°C	40°C	50°C
Expected service life (yr)	approx. 8.1	approx. 8.1	approx. 8.1	approx. 8.1

● Fig.16 Over Current Protection (V-I Characteristic)

Input: 100 VAC