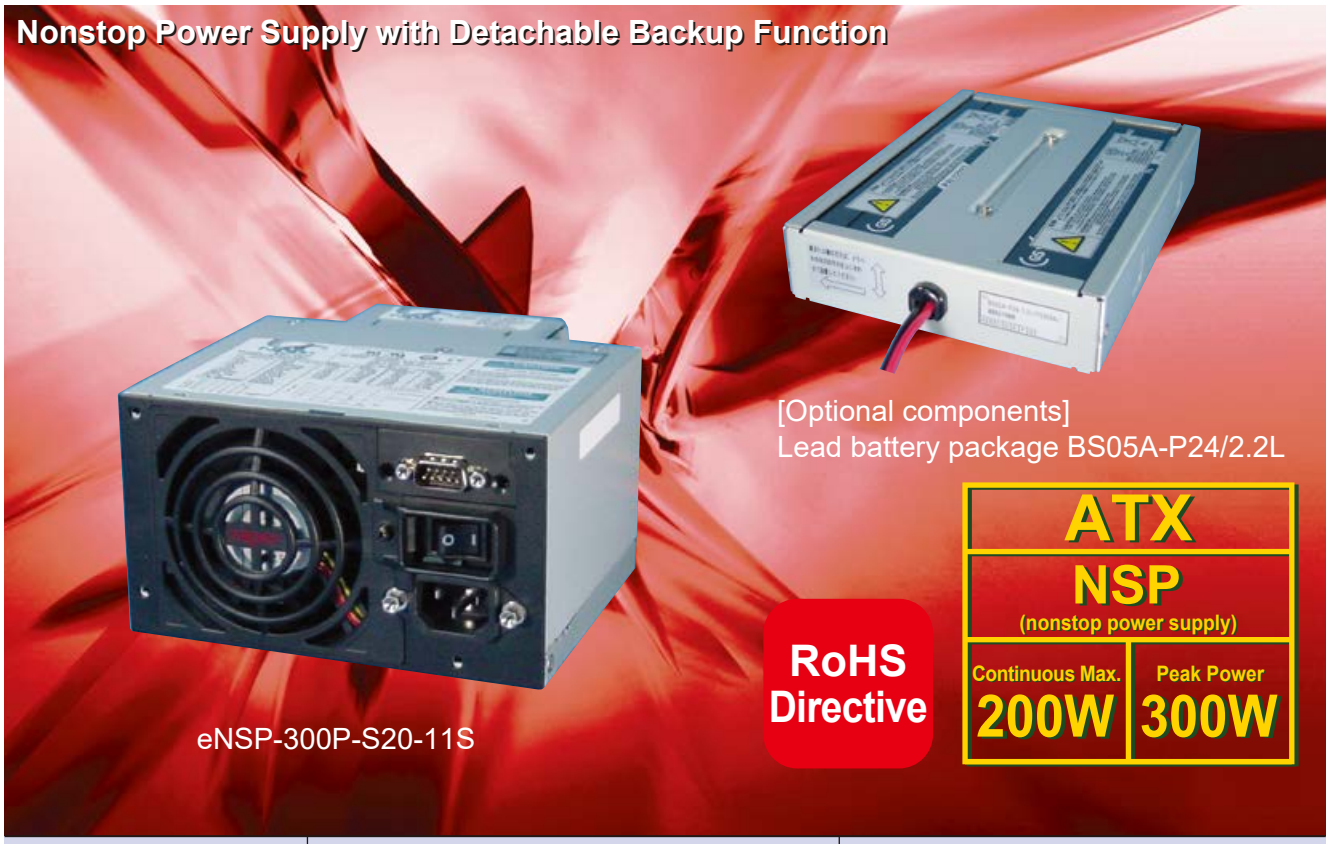
Desktop PC Power Supply eNSP-300P Series



Model	Description	Stock
eNSP-300P-S20-11S	With RS232C signal unit	Standard stock
eNSP-300P-S20-12S	With buzzer unit	Contact us
eNSP-300P-S20-16S	With USB signal unit	Standard stock
eNSP-300P-S20-10S	No signal unit	Standard stock
eNSP-300P-L20-11S	With RS232C signal unit	Standard stock
eNSP-300P-L20-16S	With USB signal unit	Standard stock

■Model Name Coding

eNSP - 300 P - ∗ 2 0 - 1 ∗ S

① ② ③ ④⑤⑥ ⑦⑧⑨

1. Series name
2. Output power
3. Peak output compliant
4. S: standard, L: 20+4pin main and S-ATA connector
5. DC input voltage (battery voltage) 24V type
6. Modification code
7. Nonstop unit embedded
8. Type of signal unit (1: RS232C signal unit, 2: buzzer unit, 6: USB signal unit, 0: no signal unit)
9. Silent type (thermal-sensing fan embedded)

Features

- With backup function, it protects your PC from blackout.
- With a flexible structure, the cooling fan and nonstop unit can be replaced easily.
- 300W peak output and 12V connector embedded
- By building in the thermal-sensing variable speed fan, noise reduction can be realized.

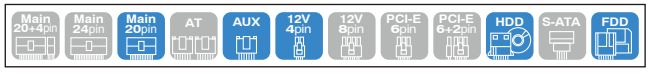
Flexible unit structure for arrangement

Dimensions

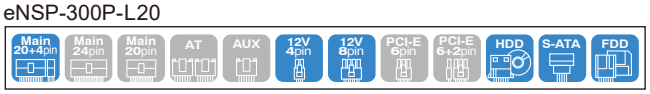
W×H×D (mm)	150×86×155 (PS/2 +size)

Output connector

eNSP-300P-S20



eNSP-300P-L20



Refer to “Product Page Guideline” on p.11

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

*RS232C: only eNSP-300P-∗20-11S
*USB: only eNSP-300P-∗20-16S

Automatic shutdown compliant OS

Windows 2000 | Windows XP | Windows Vista | Windows 7

Input

AC input	85V - 264V (worldwide range)
DC input	24V (dedicated battery package*)

*Battery package is optional (sold separately)

Output

Output voltage	*+3.3V*	*+5V*	*+12V*	*-5V*	*-12V*	*+5VSB*
Max. current/ max. power (continuous)	14A	21A	10A	0.3A	0.8A	1.5A
	Total 125W					
	Total 185W					
	Total 203.6W					
Peak current/ peak power (5 sec max.)	28A	30A	15A	0.3A	0.8A	2.5A
	Total 180W					
	Total 280W					
	Total 303.6W					
Min. current	0A	1A	0A	0A	0A	0A

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

	Items		Specification						Measurement conditions, etc.
AC Input	Rated Voltage		100 - 240 VAC (85 - 264 VAC)						Worldwide range
	Input Frequency		50 / 60Hz						47 - 63Hz
	Efficiency		68% typ. (100 VAC), 71% typ. (240 VAC) *Characteristic data: Fig.3						At rated input/output
	Power Factor		98% typ. (100 VAC), 92% typ. (240 VAC) *Characteristic data: Fig.4						
	Inrush Current		50A peak (100 VAC), 100A peak (240 VAC) *Characteristic data: Fig.5						At rated input/output at cold start (25°C)
	Input VA		330VA max. *Characteristic data: Fig.4						At rated input and max. output
			495VA max.						At rated input and peak output
DC Input	Rated Voltage		24 VDC (corresponds to dedicated battery package)						No battery startup
	Battery Discharge Cut-off Voltage		19V typ. (shutdown of battery circuit)						
	Efficiency (at Battery Operation)		67% typ.						At rated input/output
Output	Rated Voltage		+3.3V	+5V	+12V	-5V	-12V	+5VSB	
	Rated Current		9.4A	14A	7A	0.3A	0.8A	1.5A	
	Max. Current / Power		14A	21A	10A	0.3A	0.8A	1.5A	Max output power: 203.6W *Refer to Fig.1
			125W max.						
			185W max.						
	Peak Current / Power		28A	30A	15A	0.3A	0.8A	2.5A	Peak output power: 303.6W, Time: 5 sec or less, The interval between peak loads shall be at least 3 minutes. *Refer to Fig.1
			180W max.						
			280W max.						
	Min. Current		0A	1A	0A	0A	0A	0A	
	Total Voltage Accuracy (%)		±4 max.	±4 max.	±10 max.	±5 max.	±5 max.	±5 max.	Total accuracy of temperature, input, and load fluctuations
	Max. Ripple Voltage (mVp-p)		50 max.	50 max.	150 max.	50 max.	100 max.	50 max.	Two wires are coming out from the output connector and connected into one at the edge. 47µF capacitor is placed on it and it is measured. *Characteristic data: Fig.16
	Max. Spike Voltage (mVp-p)		100 max.	100 max.	200 max.	100 max.	200 max.	100 max.	
Protection	Overcurrent Protection	OCP Point (A)	32.5 min.	37 min.	16 min.	105% min. of peak current			All other outputs are at rated input/output.
		Method	All outputs except for +5VSB shutdown All outputs shutdown at battery operation			Fold back current limiting		All outputs shutdown	
	Recovery (Overcurrent)	At AC Operation	Reclosing AC input, or switching PS_ON# signal from 'OPEN' to 'L'			Automatic recovery			
		At Battery Operation	Reclosing AC input			Automatic recovery		Reclosing AC input	
	Overvoltage Protection	OVP Point (V)	3.76 - 4.3	5.74 - 7.0	13.4 - 15.6	-	-	-	
		Method	All outputs except for +5VSB shutdown All outputs shutdown at battery operation			-	-	-	
	Recovery (Overvoltage)	At AC Operation	Reclosing AC input,or switching PS_ON# signal from 'OPEN' to 'L'			-	-	-	
		At Battery Operation	Reclosing AC input			-	-	-	
Charge	Charge Voltage		27.3V typ. (at 25°C with fully-charged battery, thermal compensation)						Delivered from nonstop unit (BU-300P-24P) at AC input. Corresponds to dedicated battery package
	Charge Current		0.5±0.2A (at 24V battery voltage)						
Environment	Operating Temp. / Humidity		0 to 50°C* / 0 to 90%						*Refer to Fig.2 No condensation
	Storage Temp. / Humidity		-25 to 70°C / 10 to 95%						No condensation
	Vibration		Displacement amplitude: 0.15mm (10-55Hz), Sweep cycles: 10, Test duration: 45 minutes each axis						JIS-C-60068-2-6
	Mechanical Shock		Acceleration of 150m/s² for 11ms one time each in the X, Y and Z directions. No malfunction, damage, loosening or coming-off						JIS-C-60068-2-27
Insulation	Dielectric Strength		AC input - DC output/FG/DC input: 1500 VAC for 1 minute						
	Insulation Resistance		AC input - DC output/FG/DC input: 50MΩ min.						At 500 VDC
	Leakage Current		0.5mA max. (100 VAC) / 1mA max. (240 VAC) *Characteristic data: Fig.6						YEW. TYPE3226 (1kΩ) or equivalent
EMC	Line Noise Immunity		± 2000V (pulse width: 100/800ns, repetitive cycle: 10-50ms)						Measured by INS-410 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-B, FCC-B, EN55022-B, CISPR22-B compliant *Characteristic data: Fig.7 and 8						Measured by single unit. At rated output
	Harmonic Current Regulation		IEC61000-3-2 Class A, EN61000-3-2 Class A compliant						At rated input/output
Others	Safety Standards		UL60950, CSA C22.2 No.60950, CEMarking (IEC62368-1)						
	Cooling System		Forced air cooling: thermal-sensing variable speed fan embedded						At PS_ON# 'H', fan rotates at low speed
	Output Grounding		Connected to chassis (FG)*						*It can be customized to connect to capacitor
	Output Hold-up Time		PWR_OK holds up 20ms min. after AC failure. *Characteristic data: Fig.13						At rated output
	Reliability Grade		FA (industrial equipment grade, double-sided PCB with plated through hole)						Follow our standard
	MTBF		105,000H min.						Based on EIAJ RCR-9102
	Weight		2.0kg typ.						
	Warranty		3 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

Fig.1 Output power Cross Regulation

Follow the graph below for the power distribution of the total power of +3.3V and +5V vs. +12V output power.

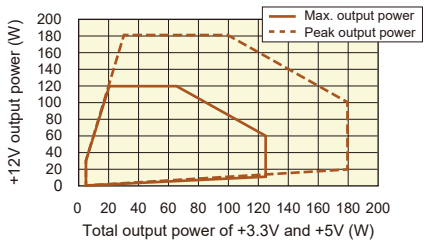
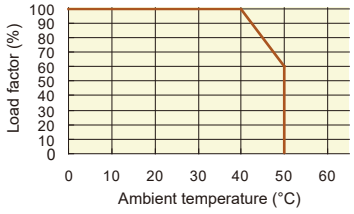
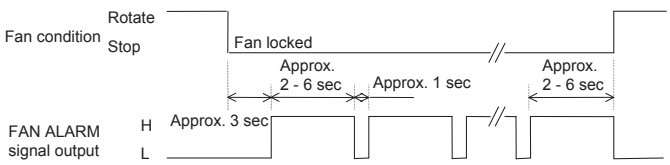


Fig.2 Temperature Derating

When the ambient temperature (near the airflow inlet) exceeds 40°C, follow the derating curve to derate rated current/power, max. current/power, and peak current/power.



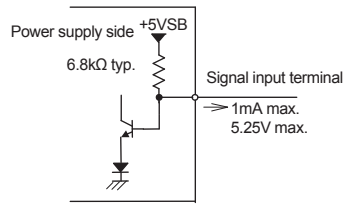
Signal Input / Output Specification Condition: at normal temperature and humidity unless otherwise specified

	Items	Specification	Note
Input Signal	Output ON / OFF Control Signal (PS_ON#)	+3.3V, +5V, +12V, -5V, and -12V outputs shutdown with 'OPEN' input (During the backup operation, battery connection is shut off with 'OPEN' input.)	Signal input between the pin 14 of P1 connector (eNSP-300P-S20 series) or the pin 16 of MA20P connector (eNSP-300P-L20 series) and COM pin
	+3.3V SENSE	The input terminal to detect the voltage of +3.3V output; by connecting to the load terminal, only the line drop of the + side of the output cable is compensated.	The pin 11 of P1 connector (eNSP-300P-S20 series) The pin 13 of MA20P connector (eNSP-300P-L20 series)
	Battery Shutdown Signal for TTL (SHUT DOWN_T)	Battery connection is shutdown with 'L' input (15ms min. input). (available only during the backup operation)	Signal input between the pin 2 of P12 connector (eNSP-300P-S20 series) or the pin 2 of SIG6P connector (eNSP-300P-L20 series) and COM pin
	Battery Shutdown Signal for RS232C (SHUT DOWN_R)	Battery connection is shutdown with 'positive (+2.4V min.)' input (15ms min. input). (available only during the backup operation)	Apply to only eNSP-300P-*20-11S The pin 4 of front panel RS232C connector
Output Signal	Normal Output Signal (PWR_OK)	'H' signal is delivered when the +5V output is normal (detection delay time: 200 - 400ms).	The pin 8 of P1 connector (eNSP-300P-S20 series) The pin 8 of MA20P connector (eNSP-300P-L20 series)
	Blackout Detection Signal for TTL (AC FAIL_T)	The signal goes 'OPEN' at low AC input voltage and blackout detection (open collector output). (The voltage drop of AC input capacitor inside the power supply is detected and the detection delay time changes accordingly, varying from 20 - 500ms after AC failure.)	The pin 3 of P12 connector (eNSP-300P-S20 series) The pin 3 of SIG6P connector (eNSP-300P-L20 series)
	Blackout Detection Signal for RS232C (AC FAIL_R)	'Negative (-9V typ.)' is delivered at low AC input voltage and blackout detection. (The voltage drop of AC input capacitor inside the power supply is detected and the detection delay time changes accordingly, varying from 20 - 500ms after AC failure.)	Apply to only eNSP-300P-*20-11S The pin 8 of front panel RS232C connector
	Blackout Detection Signal for USB (AC FAIL_U)	The equivalent data signal of AC FAIL_R 'negative' is delivered at low AC input voltage and blackout detection. (The voltage drop of AC input capacitor inside the power supply is detected and the detection delay time changes accordingly, varying from 20 - 500ms after AC failure.)	Apply to only eNSP-300P-*20-16S Front panel USB connector
	Low Battery Voltage Signal for TTL (BATT LOW_T)	The signal goes 'OPEN' when the battery terminal voltage decreases to 20V typ. (open collector output). 'L' is delivered when the battery package is not connected.	The pin 4 of P12 connector (eNSP-300P-S20 series) The pin 4 of SIG6P connector (eNSP-300P-L20 series)
	Low Battery Voltage Signal for RS232C (BATT LOW_R)	'Negative (-9V typ.)' is delivered when the battery terminal voltage decreases to 20V typ. ('positive (+9V typ.)' is delivered when the battery package is not connected.)	Apply to only eNSP-300P-*20-11S The pin 1 of front panel RS232C connector
	Low Battery Voltage Signal for USB (BATT LOW_U)	The equivalent data signal of BATT LOW_R 'negative' is delivered when the battery terminal voltage decreases to 20V typ. (The equivalent data signal of BATT LOW_R 'positive' is delivered when the battery package is not connected.)	Apply to only eNSP-300P-*20-16S Front panel USB connector
	Buzzer Noise	Buzzer noise is delivered at blackout (the volume can be adjusted). Note: The buzzer may go off for a few seconds when AC input is turned on or interrupted.	Apply to only eNSP-300P-S20-12S
	Fan Alarm Signal (FAN ALARM)	When the fan lock status continues, square waves, as shown below, are delivered constantly. 	The pin 6 of P12 connector (eNSP-300P-S20 series) The pin 2 of SIG6P connector (eNSP-300P-L20 series)

Signal Circuit

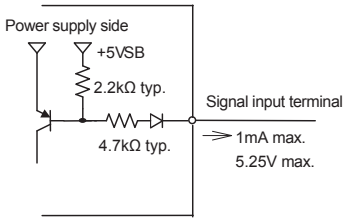
Input Signal Circuit

(PS_ON#)

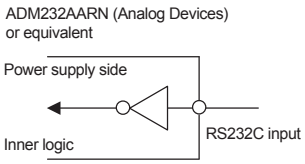


('L'≤0.8V)

(SHUT DOWN_T)

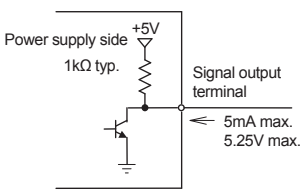


(SHUT DOWN_R)
*Apply to only eNSP-300P-*20-11S*



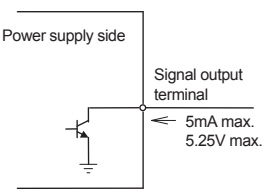
Output Signal Circuit

(PWR_OK)



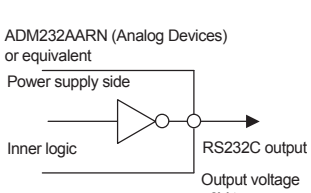
('L'<0.4V)

(AC FAIL_T),(FAN ALARM),(BATT LOW_T)



('L'<0.4V)

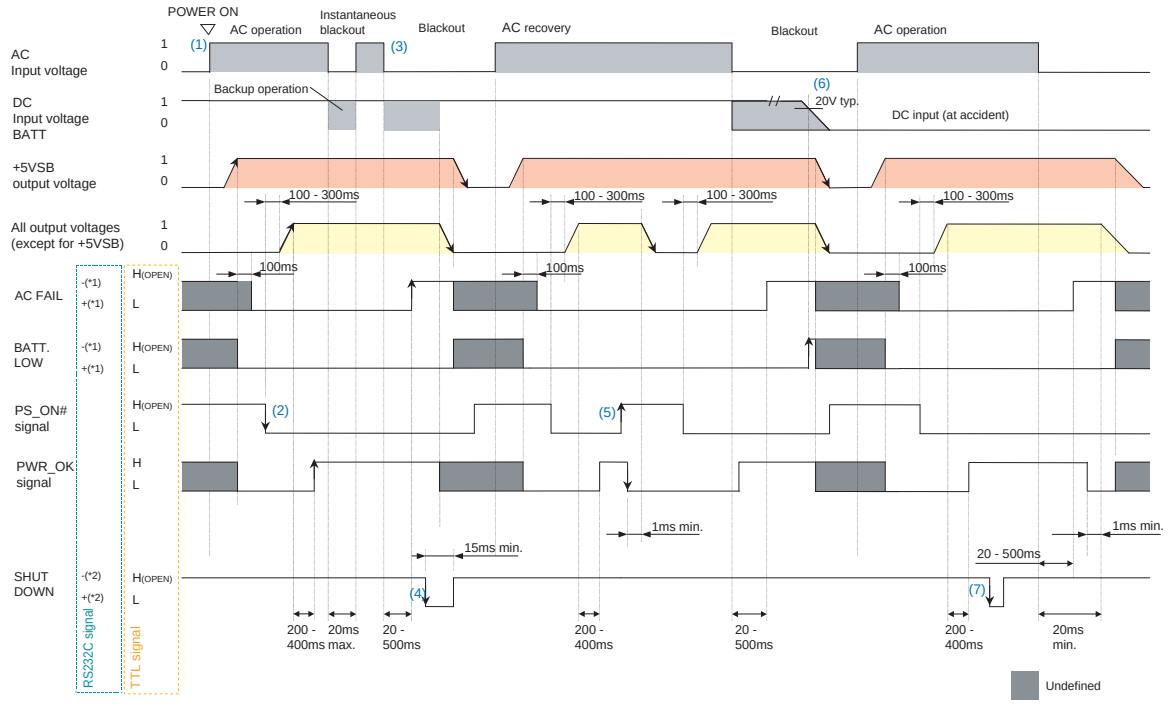
(AC FAIL_R),(BATT LOW_R)
*Apply to only eNSP-300P-*20-11S*



(AC FAIL_U),(BATT LOW_U)
*Apply to only eNSP-300P-*20-16S*

USB1.1 standard compliant (B type connector)
*Dedicated driver software needs to be installed to the PC (Existing UPS service or other softwares that use RS232C signal can be used with USB signal).

Sequence Diagram

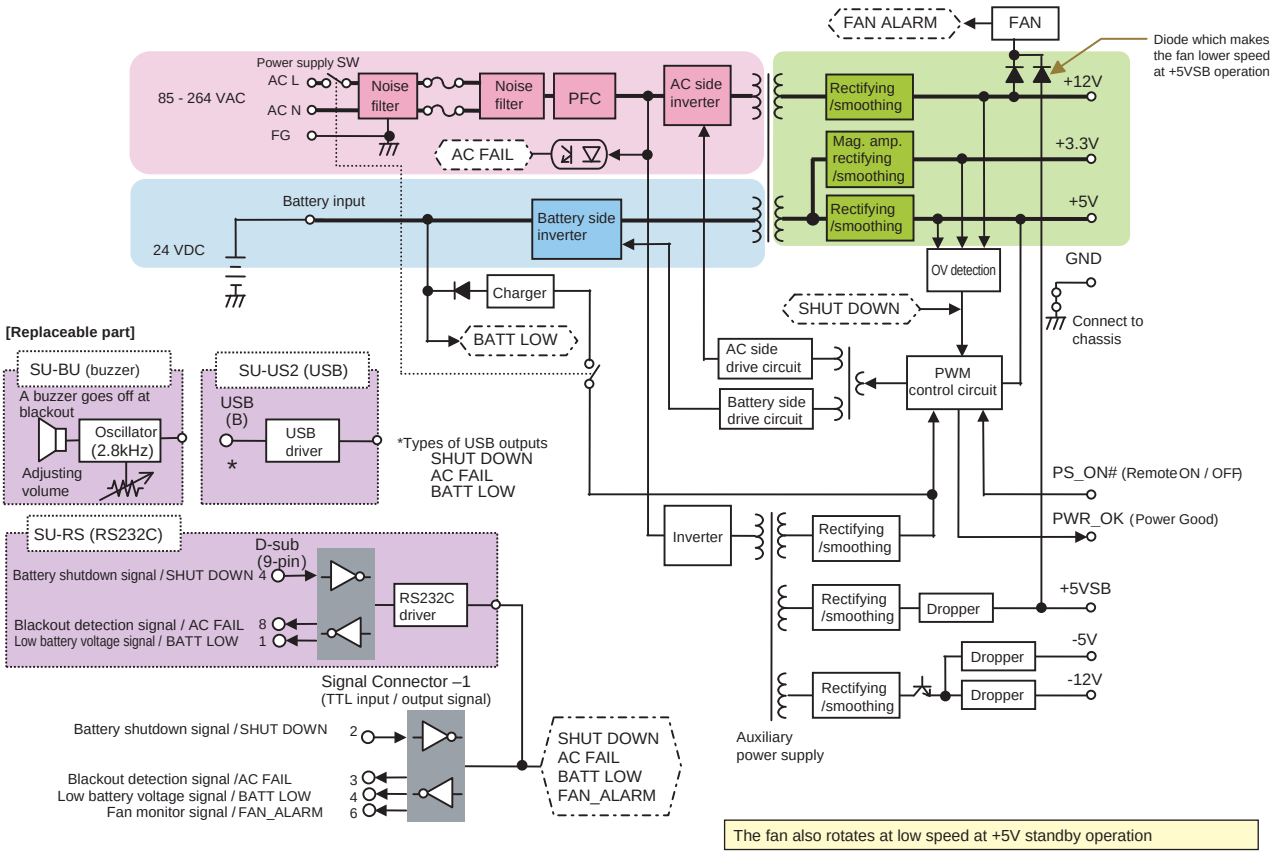


(*1)
Negative signal output is -9V typ.
Positive signal output is +9V typ.

(*2)
Negative signal input should be +0.4V to -20V.
Positive signal output should be +2.8V to +20V.

(1) With AC input, only +5VSB starts up.
(2) With PS_ON# 'L' input, all outputs start up. After 200 - 400ms, PWR_OK goes 'H'.
(3) AC FAIL 'negative (RS232C)' or '(OPEN) (TTL)' is delivered 20 - 500ms after blackout.
(4) At blackout, all outputs including +5VSB shut down with SHUT DOWN 'positive (RS232C)' or 'L(TTL)' input of 15ms min.
(5) When AC input and all outputs including +5VSB start up, all outputs except for +5VSB shutdown with PS_ON# 'OPEN' input.
(6) When the battery voltage decreases to 20V typ. at backup operation, BATT LOW 'negative (RS232C)' or '(OPEN)(TTL)' is delivered; after it decreases to 19V typ., all outputs, including +5VSB shutdown.
(7) At AC input, the output does not change even SHUT DOWN 'positive (RS232C)' or 'L (TTL)' input.

Block Diagram

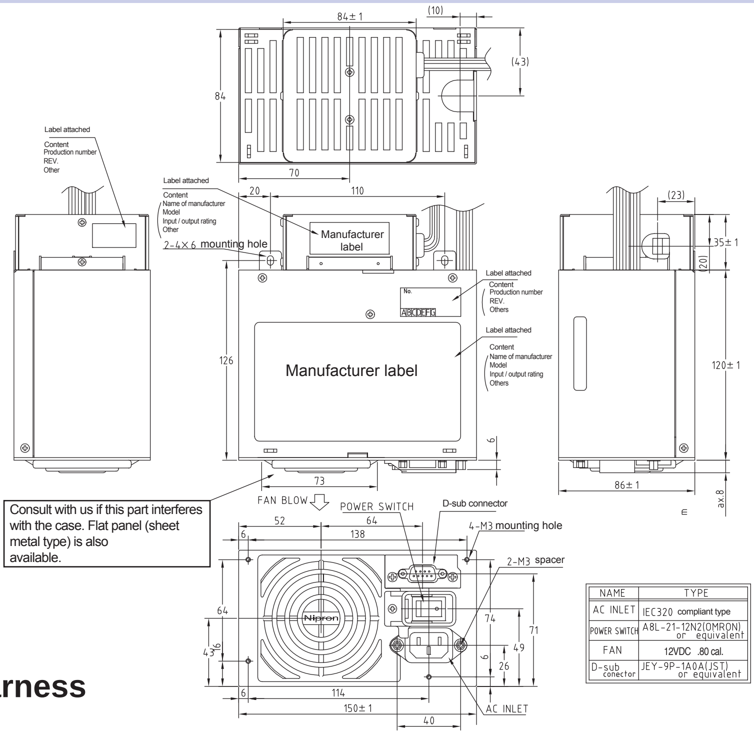


The fan also rotates at low speed at +5V standby operation

In many cases, 1.5A max. load is drawn from +5VSB even at standby operation.
In order to prevent shortening the power supply's life span caused by heat, the fan rotates at low speed to cool down the temperature inside the power supply.
(eNSP-300P-S24-1*S is also available for customers who do not need this function.)

Outline Drawing

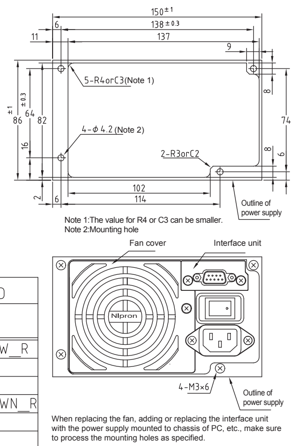
eNSP-300P-*20-11S



D-Sub	
PIN No.	FUNCTION
1	BATT LOW_R
2	N.C.
3	N.C.
4	SHUT DOWN_R
5	N.C.
6	N.C.
7	N.C.
8	AC FAIL_R
9	N.C.

NAME	TYPE
AC INLET	IEC320 compliant type
POWER SWITCH	A8L-21-12N2(OMRON) or equivalent
FAN	12VDC .80 cal.
D-sub conector	JEY-9P-1A0A(JST) or equivalent

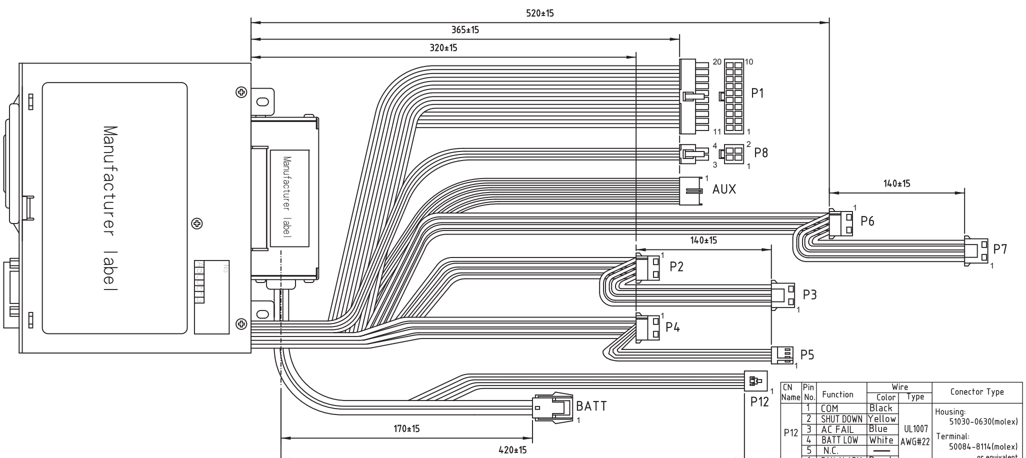
How to process the mounting holes (recommended)



■Installation direction
The unit can be installed in any directions.

Output Harness

eNSP-300P-S20-1*S

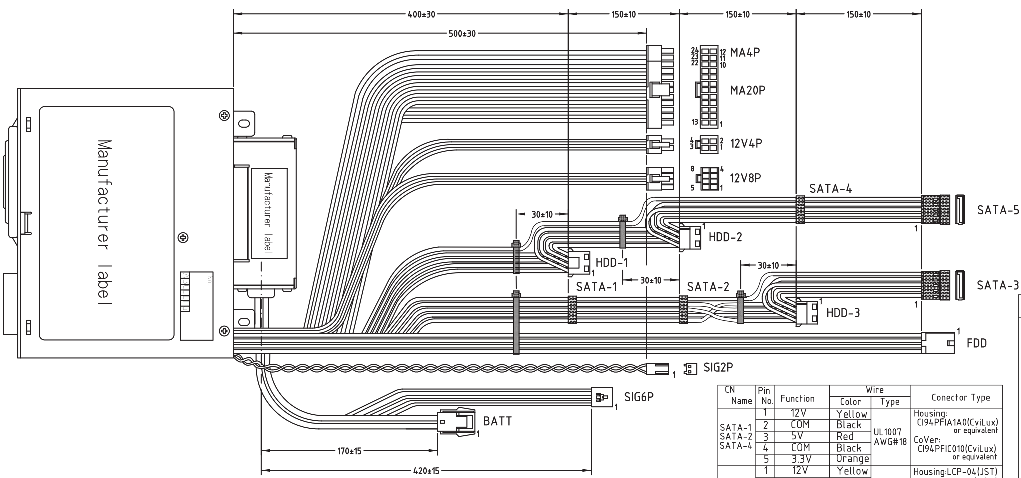


CN Name	Pin No.	Function	Wire Color	Wire Type	Conector Type
P1	1	+3.3V DC	Orange	UL1007 AWG#18	Housing 5557-20R (molex) Terminal 5556(molex)
	2	+3.3V DC	Orange		
	3	COM	Black		
	4	+5V DC	Red		
	5	COM	Black		
	6	+5V DC	Red		
	7	COM	Black		
	8	PWR-OK	Gray	UL1007AWG#22	
	9	+5V SB	Purple	UL1007 AWG#18	
	10	+12V DC	Yellow		
	11	+3.3V default sense	Brown	UL1007AWG#22	
		+3.3V DC	Orange	UL1007 AWG#18	
	12	-12V DC	Blue		
	13	COM	Black		
	14	PS-ON#	Green	UL1007AWG#22	
	15	COM	Black	UL1007 AWG#18	
	16	COM	Black		
	17	COM	Black		
	18	-5V DC	White		
	19	+5V DC	Red		
	20	+5V DC	Red		

CN Name	Pin No.	Function	Wire Color	Wire Type	Conector Type
P2~P4 P6,P7	1	+12V DC	Yellow	UL1007 AWG#18	Housing:1-480424-0 (AMP) Terminal: 170120-1(AMP) or equivalent
	2	COM	Black		
	3	COM	Black		
	4	+5V DC	Red		
P5	1	+5V DC	Red	UL1007 AWG#22	Housing: 171822-04(AMP) Terminal: 170204-1(AMP) or equivalent
	2	COM	Black		
	3	COM	Black		
	4	+12V DC	Yellow		
P8	1	COM	Black	UL1007 AWG#18	Housing: 5557-04R(molex) Terminal: 5556(molex) or equivalent
	2	COM	Black		
	3	+12V DC	Yellow		
	4	+12V DC	Yellow		
AUX	1	COM	Black	UL1007 AWG#18	Housing: 8500-066(ALEX) Terminal: 23T-6204(ALEX) or equivalent
	2	COM	Black		
	3	COM	Black		
	4	+3.3V DC	Orange		
	5	+3.3V DC	Orange		
	6	+5V DC	Red		

CN Name	Pin No.	Function	Wire Color	Wire Type	Conector Type
P12	1	COM	Black	UL1007 AWG#22	Housing: 51030-0630(molex) Terminal: 50084-8114(molex) or equivalent
	2	SHUT DOWN	Yellow		
	3	AC FAIL	Blue		
	4	BATT LOW	White		
	5	N.C.	———		
	6	FAN ALARM	Purple		
BATT	1	BATT +VE	Red	UL1015 AWG#14	Housing: VLR-02V(JST) Terminal: SVM-61T-P2.0(JST) or equivalent
	2	BATT -VE	Black		

eNSP-300P-L20-1*S



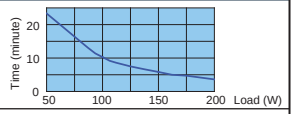
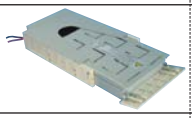
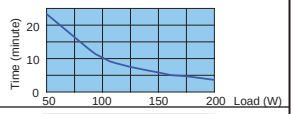
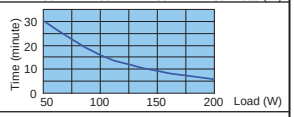
CN Name	Pin No.	Function	Wire Color	Wire Type	Conector Type
12V4P	1	COM	Black	UL1007 AWG#18	Housing: 5557-04R(Molex) or equivalent Terminal: 5556(Molex) or equivalent
	2	COM	Black		
	3	12V	Yellow		
	4	12V	Yellow		
12V8P	1	COM	Black	UL1007 AWG#18	Housing: 5557-08R(Molex) or equivalent Terminal: 5556(Molex) or equivalent
	2	COM	Black		
	3	COM	Black		
	4	COM	Black		
	5	12V	Yellow		
	6	12V	Yellow		
	7	12V	Yellow		
	8	12V	Yellow		
SIG2P	1	COM	Black	UL1007 AWG#24	Housing. CI3102S0000(CviLux) or equivalent Terminal CI31T021BE0(CviLux) or equivalent
	2	FAN ALARM	Violet		
SIG6P	1	COM	Black	UL1007 AWG#22	Housing: 51030-0630(molex) or equivalent Terminal: 50084-8114(molex) or equivalent
	2	SHUT DOWN	Yellow		
	3	AC FAIL	Blue		
	4	BATT LOW	White		
	5	N.C.	———		
	6	FAN ALARM	Violet		
BATT	1	BATT +VE	Red	UL1015 AWG#14	Housing VLR-02V(JST) or equivalent Terminal SVM-61T-P2.0(JST) or equivalent
	2	BATT -VE	Black		

CN Name	Pin No.	Function	Wire Color	Wire Type	Conector Type
SATA-1 SATA-2 SATA-4	1	12V	Yellow	UL1007 AWG#18	Housing: CI94PFIA1A0(CviLux) or equivalent CoVer: CI94PFIC010(CviLux) or equivalent
	2	COM	Black		
	3	5V	Red		
	4	COM	Black		
	5	3.3V	Orange		
HDD-1 ~HDD-3	1	12V	Yellow	UL1007 AWG#18	Housing:LCP-04(JST) or equivalent Terminal: SLC22T-2.0(JST) or equivalent
	2	COM	Black		
	3	COM	Black		
	4	5V	Red		
SATA-3 SATA-5	1	12V	Yellow	UL1007 AWG#18	Housing: CI94PF00100(CviLux) or equivalent Terminal: CI94T03APP0(CviLux) or equivalent
	2	COM	Black		
	3	5V	Red		
	4	COM	Black		
	5	3.3V	Orange		
FDD	1	5V	Red	UL1007 AWG#20	Housing: 171822-4(AMP) Terminal: 170204-1(AMP)
	2	COM	Black		
	3	COM	Black		
	4	12V	Yellow		

CN Name	Pin No.	Function	Wire Color	Wire Type	Conector Type
MA20P	1	+3.3V	Orange	UL1007 AWG#18	Housing: CP-01120030-C (CviLux) Terminal: 13PIN CP-01100105 (CviLux) Other: CP-01100102 (CviLux)
	2	+3.3V	Orange		
	3	COM	Black		
	4	+5V	Red		
	5	COM	Black		
	6	+5V	Red		
	7	COM	Black		
	8	PWR-OK	Gray	UL1007AWG#22	
	9	+5V SB	Violet	UL1007 AWG#18	
	10	+12V	Yellow		
	13	+3.3V RS	Brown	UL1007AWG#22	
		+3.3V	Orange	UL1007 AWG#18	
	14	-12V	Blue		
	15	COM	Black		
	16	PS_ON#	Green	UL1007AWG#22	
	17	COM	Black	UL1007 AWG#18	
	18	COM	Black		
	19	COM	Black		
	20	-5V	White		
	21	+5V	Red		
	22	+5V	Red		
MA4P	11	+12V	Yellow	UL1007 AWG#18	Housing: CP-01104030-C (CviLux) Terminal: CP-01100102 (CviLux)
	12	+3.3V	Orange		
	23	+5V	Red		
	24	COM	Black		
	—	———	———		

Optional Components Sold Separately

Battery Package

Page	Picture	Model	Type	Shape (size)	Backup Time
P.401		BS05A-P24/2.2L	Lead	5-inch bay fixed type (W×D×H=146×190×37mm)	
P.403		RBS01A-P24/2.2L	Lead	5-inch bay fixed, removable type (W×D×H=146×245×42mm)	
P.407		BS06A-H24/2.5L (for standby use) BS06B-H24/2.5L (with fan, for cycle use)	Ni-MH	5-inch bay fixed type (W×D×H=146×181×38mm)	

*The backup time is a reference value at initial use; it is not a guaranteed value.

Cable

Picture	Model	Type	Description
	WH2601-02	RS232C communication cable	Dedicated to Windows 2000 / XP / Vista / 7. The cable can be used with power supplies equipped with SU-RS (RS232C signal unit). [RoHS]
 *reference image	WH2967	USB communication cable	USB communication cable The cable can be used with power supplies equipped with SU-US2 (USB signal unit). [RoHS]
	WH2753	AC power cord	125 VAC 12A [PSE]
	WH2753-02	AC power cord	125 VAC 12A (tracking resistance type) [PSE]

Parts / Unit

Picture	Model	Type	Description
	SU-RS	RS232C signal unit	Automatic shutdown is possible with RS232C (standard equipment for eNSP-300P-∗20-11S)
	SU-US2	USB signal unit	Automatic shutdown is possible with USB (standard equipment for eNSP-300P-∗20-16S)
	SU-BU	Buzzer unit	Buzzer noise is delivered at blackout (the volume can be adjusted) (standard equipment for eNSP-300P-∗20-12S)
	ACC2734	AC power cord retention clamp	It prevents the slipping of AC power cord (WH2753, WH2753-02) and operational mistakes of power switch. *In some cases, the clamp (ACC2734) might not be possible mounted to a commercial AC power cord.

Software

Picture	Model	Type	Description
	NSP Pro 2	Automatic shutdown software	Dedicated to Windows 2000 / XP / Vista / 7

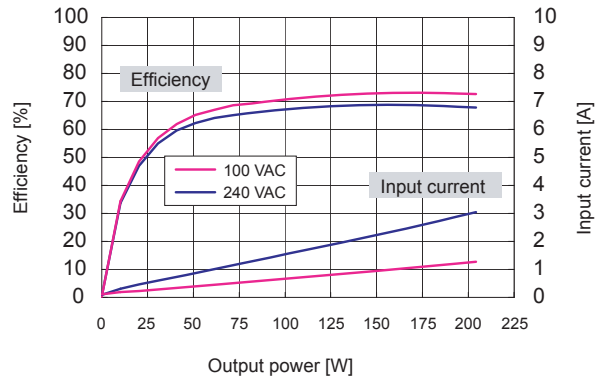
*Free software "NSP Pro 2" available at our web-site
*The UPS service of Windows 2000 and XP available

Other Optional Components

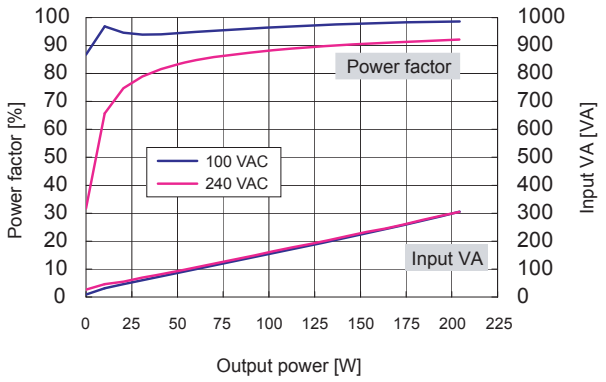
Model	Description	Model	Description
ACC2637	Automatic startup unit	WH5105	12V 4-pin connector conversion harness (80mm)
WH2820	20-pin extension harness (600mm)	WH5105-02	12V 4-pin connector conversion harness (320mm)
WH2747	20-pin extension harness (450mm)	WH5055	AT connector conversion harness
WH2892-02	20-pin extension harness (200mm)	ACC5046	Harness with PS_ON switch
WH2812	PCI-E 6-pin connector conversion harness	ACC5077	PS_ON terminal short connector
		WH5073	PS_ON terminal short 20-pin harness

Characteristics Data eNSP-300P-S20-11S (Examples of actual measurement)

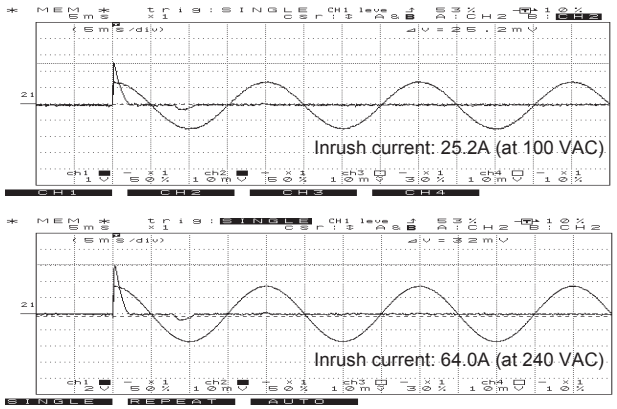
● Fig.3 Efficiency / Input Current vs. Output Power



● Fig.4 Power Factor / Input VA vs. Output Power



● Fig.5 Inrush Current



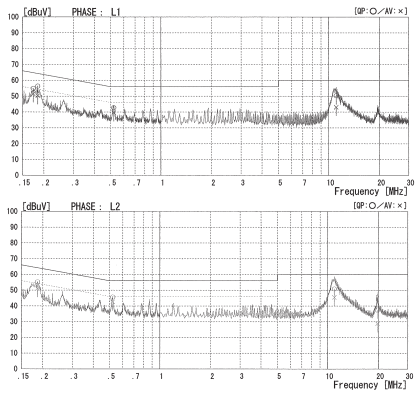
● Fig.6 Leakage Current

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

	Rated load	Min. load
100 VAC	0.38mA	0.29mA
240 VAC	0.71mA	0.74mA

● Fig.7 Conducted Emission at 100 VAC

Input: 100 VAC
Load: Rated
Mode: Peak

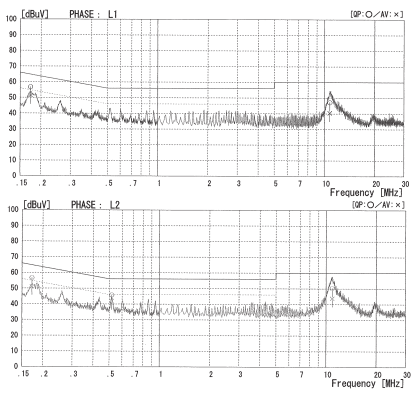


Measuring point: L1-FG

Measuring point: L2-FG

● Fig.8 Conducted Emission at 230 VAC

Input: 230 VAC
Load: Rated
Mode: Peak

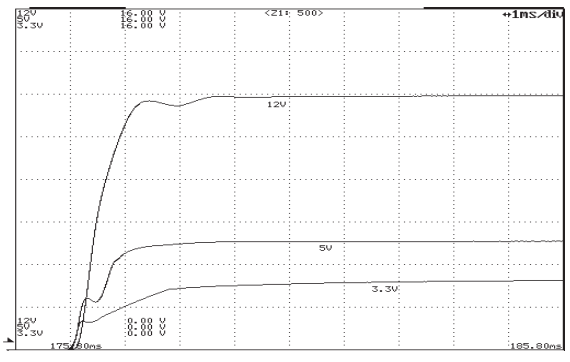


Measuring point: L1-FG

Measuring point: L2-FG

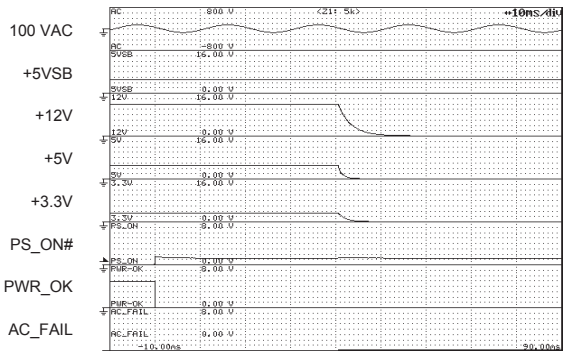
● Fig.9 Rising Characteristics at 100 VAC

Input: 100 VAC
Load: Rated
Time axis: 1ms/DIV



● Fig.10 Falling Characteristics at 100 VAC when REMOTE goes Off

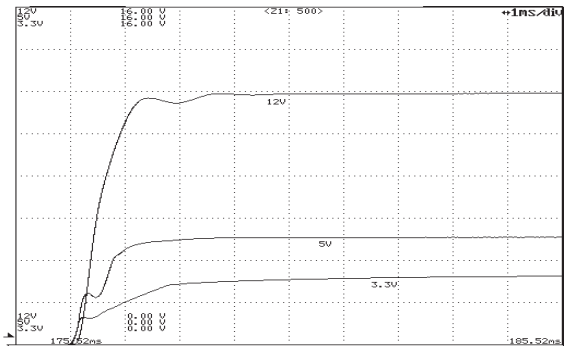
Input: 100 VAC
Load: Rated
Time axis: 10ms/DIV



Characteristics Data eNSP-300P-S20-11S (Examples of actual measurement)

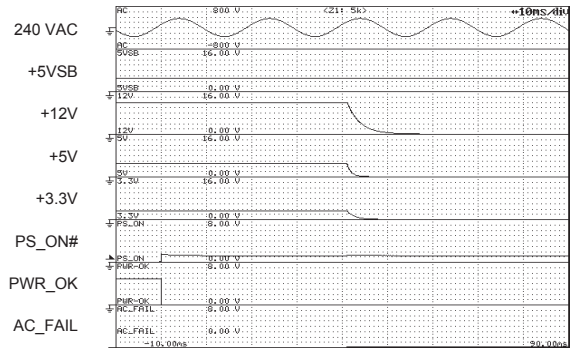
● Fig.11 Rising Characteristics at 240 VAC

Input: 240 VAC
Load: Rated
Time axis: 1ms/DIV



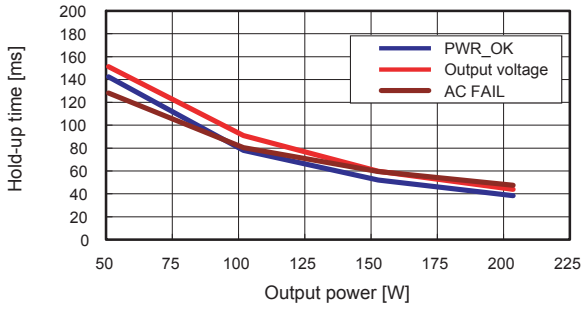
● Fig.12 Falling Characteristics at 240 VAC when REMOTE goes Off

Input: 240 VAC
Load: Rated
Time axis: 10ms/DIV



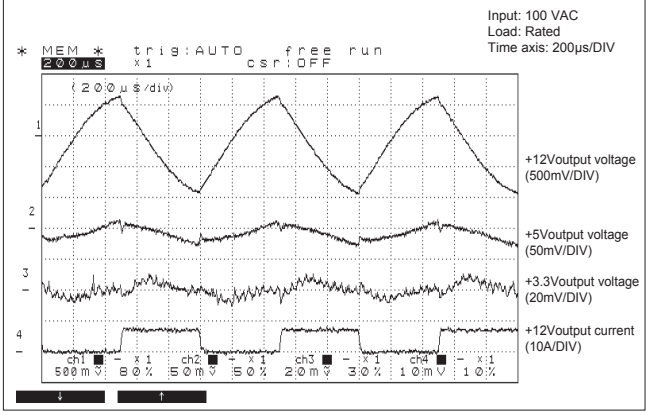
● Fig.13 Output Hold-up Time vs. Output Power

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



● Fig.14 Dynamic Load Fluctuation Characteristics at 1kHz

Input: 100 VAC
Load: Rated
Time axis: 200µs/DIV



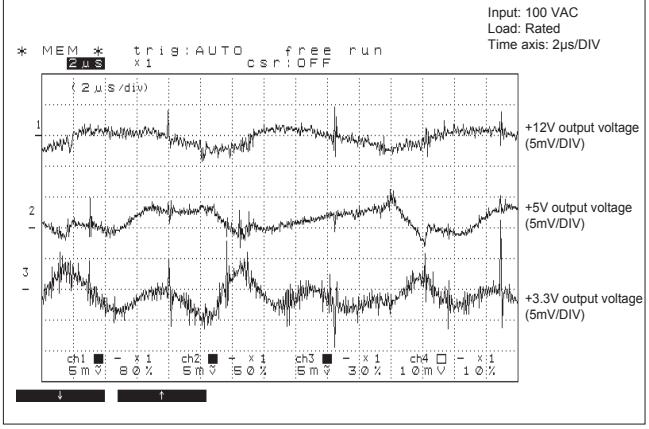
● Fig.15 Output Voltage Regulation

Output	Min. load	Rated load	Peak load
+12V output	0A	7A	15A
+5V output	1A	14A	30A
+3.3V output	0A	9.4A	28A

AC input voltage	85 VAC	100 VAC	132 VAC	176 VAC	240 VAC	264 VAC
+12V output (min. load)	12.284 V	12.299 V	12.296 V	12.301 V	12.302 V	12.305 V
+12V output (rated load)	11.938 V	11.934 V	11.930 V	11.928 V	11.928 V	11.927 V
+12V output (peak load)	11.406 V	11.402 V	11.397 V	11.394 V	11.394 V	11.393 V
+5V output (min. load)	5.170 V	5.173 V	5.172 V	5.171 V	5.171 V	5.170 V
+5V output (rated load)	5.070 V	5.069 V	5.068 V	5.067 V	5.067 V	5.067 V
+5V output (peak load)	4.993 V	4.992 V	4.992 V	4.991 V	4.990 V	4.991 V
+3.3V output (min. load)	3.348 V	3.348 V	3.348 V	3.348 V	3.348 V	3.348 V
+3.3V output (rated load)	3.300 V	3.300 V	3.300 V	3.300 V	3.300 V	3.299 V
+3.3V output (peak load)	3.235 V	3.235 V	3.235 V	3.235 V	3.235 V	3.233 V

● Fig.16 Ripple and Spike Voltage

Input: 100 VAC
Load: Rated
Time axis: 2µs/DIV



● Fig.17 Ambient Temperature vs. Expected Service Life

■ Electrolytic capacitors

Input: 85 VAC
Load: Rated
Operating time: 24 consecutive hours

Intake air temp.	20°C	30°C	40°C
Expected service life (yr)	approx. 34	approx. 17	approx. 8.5

※ 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.18 Over Current Protection (V-I Characteristic)

Input: 100 VAC