Product Specification

Created: October 30th, 2013

This specification applies to Embedded type stabilized power supply HPCSA-570P-X2S.

General specification (Provided at normal temperature and humidity unless otherwise specified)

Items		Specifications	Measurement conditions, etc.
AC Input	Rated voltage	100-240 VAC	Worldwide range
	Voltage range	85-264 VAC	(Note 1)
	Current	4.8A typical at 100VAC / 2.1A typical at 240VAC	
	Rated frequency	50 / 60 Hz	Frequency range: 47 to 63Hz
	Inrush current	31A peak max. at 100VAC 75A peak max. at 240VAC	(Note2) With continuous rated output at cold start (25°C)
	Power factor	96% min. (100VAC) / 90% min. (240VAC)	
	Efficiency	80% typical at 100VAC / 85% typical at 240VAC	80PLUS bronze compliant
DC Input	Nominal voltage	–	
	Battery discharge cut-off voltage	–	
	Efficiency	–	
Environment	Operating temp. /Humidity	0 to 60°C / 10 to 90% RH	No condensation (Note 3)
	Storage temp. /Humidity	-20 to 70°C / 10 to 95% RH	No condensation
	Vibration	To endure Vibration acceleration of 2G, Vibration of 10 to 55Hz for 10 sweep cycles in each X-, Y, and Z direction 10 times	JIS-C-60068-2-6 At no operation
	Mechanical strength	Lift one bottom edge 50mm high with the opposite edge placed on a test bench, and let if fall. Repeat 3 times on other three edges as well and no malfunction shall be observed	JIS-C-60068-2-31 At no operation

Note

Note 1. Follow the derating condition in another page regarding the lower limit of input voltage at Continuous max and Peak rating.

Note 2. Charging current equal to or less than 100μs into X-capacitor in input filter circuit shall not be defined as Inrush current.

Note 3. Follow the derating condition in another page when the ambient temperature exceeds 45°C.

出図
'13.10.27
㈱ニプロン
技術管理

Drawn by	Reviewed by	Approved by	Series name:	Drawing No.
Yodo	石川	有野	HPCSA-570P-X2S	6172−01−4−520

Product Specification

Created: October 30th, 2013

Items		Specifications	Measurement conditions, etc.
Insulation	Insulation resistance	50MΩ or more between input and FG/output	At 500VDC
	Dielectric strength	1.5kV for one minute between input and FG/output	Cut-off current 10mA
	Leakage current	0.5mA max. at 100VAC input, 1.0mA max. at 200VAC input, 1.2mA max. at 240VAC input	IEC60950 compliant
EMS/EMI	Line noise immunity	±2,000V (pulse width of 100/1000ns, cycle period of 30 to 100Hz, Normal/Common mode with Positive/Negative polarity for 10 minutes)	To be measure with INS-410. There shall be no fluctuation in DC-component of output or no malfunction
	Surge immunity	IEC 61000-4-5 Installation Environment Class 3 compliant Common mode : ±2kV, Normal mode: ±1kV 5times for each	There shall be no malfunction or no failure At 100V/240V AC
	Electrostatic Discharge immunity	IEC 61000-4-2 test level 3 compliant Contact discharge:10 times at ±6kV	There shall be no malfunction or no failure At 100V/240V AC
	Conducted emission	VCCI / FCC / CISPR22-B / EN55022 Class B compliant	To be measured on the single power supply
	Harmonic current	IEC61000-3-2 Class D compliant	At rated input and load
Others	Safety standard (A) (B)	UL60950, CSA60950 (c-UL), CCC approved, CE marking(IEC62368-1), PSE compliant	Class I equipment: Embedded type power supply
	Cooling system	Forced air cooling by internal fan	Fan speed changes according to operating temp. and load condition
	Dimensions	150 (W)×86(H)×140(D)	Except protrusions; Refer to the outline drawing in another page
	Weight	1.7 kg typ	
	Reliability grade	FA	To follow our standard
	Lifetime expectancy	10 years or longer (Limited lifetime Component: Electrolytic capacitors and Fan motor)	Lifetime expectancy when operated at AC 100V, rated load, and 25 °C of the ambient temperature
	M.T.B.F.	70,000h min.	Based on EIAJ RCR-9102
	Warranty	Three years after delivery: If defects belong to us, the defective unit shall be repaired or replaced at our cost	Except the operation out of the specification

出図 20.10.27 (株)ニプロン 技術管理

B: (B)×1 Sep. 30th, 2020 UCHIDA

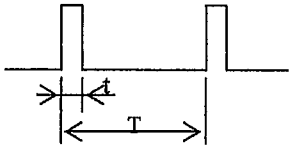
A: (A)×1 Dec. 16th, 2019 YODO

Drawn by	Reviewed by	Approved by	Series name:	Drawing No.
Yodo	畠山	TTC 20.10.09 有野	HPCSA-570P-X2S	6172−01−4−520 B

Output specification (All items shall be provided at normal temperature and humidity unless otherwise specified)

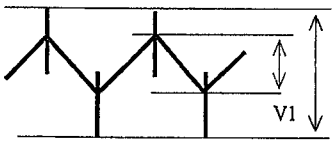
Items			CH1	CH2	CH3	CH4	CH5 (5VSB)	Measurement conditions, etc.
Output rating	Rated voltage		3.3V	5V	12V	-12V	5V	
	Min. current		0A	0A	0A	0A	0A	
	Rating	Rated current	10A	10A	25A	0.5A	2.0A	Standard Value at measuring of input/output characteristics
		Rated power	33W	50W	300W	6W	10W	
	Continuous max	Max. current	20A	24A	30A	0.5A	2.0A	Continuous rating. Maximum total output power is 400W (see the derating conditions on P.6)
		Max. power	150W		360W	6W	10W	
			390W					
			400W					
	Peak rating	Peak current	30A	30A	35A	0.5A	3.0A	Momentary rating is within 5 seconds. Momentary total output power is 570W (See Figure.1 and the derating conditions on P.6)
		Peak power	200W		420W	6W	15W	
			555W					
			570W					
Output characteristics	Total voltage regulation		±5%	±5%	±5%	±5%	±5%	See the derating conditions on P.6
	Max. ripple voltage (mV_{p-p})		50 Max.	50 Max.	120 Max.	120 Max.	50 Max.	Connect lead wires to output connecter, and then measure on the test board with an electrolytic capacitor (47μF) and a ceramic capacitor (0.1μF)
	Max. spike voltage (mV_{p-p})		100 Max.	100 Max.	170 Max.	170 Max.	100 Max.	
Protection	OCP	OCP point (A)	27 Min.	31 Min.	37 Min.	Short circuit protection		CH1: CH2 continuous max., others without loads CH1: CH2 continuous max., others without loads Others: all CH is measured with rated loads CH6: others without loads.
		Method	All outputs except CH5 shut down.			Hold-down current limiting	All outputs shut down	
		Recovery	Reclosing of AC input or, restarting PS_ON.			Automatic recovery		Ac input re-entry time intervel≧10s after previous shut off.
	OVP	OVP point (V)	3.76 to 4.3	5.74 to 7.0	13.4 to 15.6	–	–	
		Method	All outputs except CH5 shut down.			–	–	
		Recovery	Reclosing of AC input or, restarting PS_ON.			–	–	Ac input re-entry time intervel≧10s after previous shut off.

Figure 1. Duty ratio of Peak current/Power
Peak current/Power shall be 5 seconds max.
and its duty ratio shall be 10% max.



t ≦5 sec.
t /T ≦0.1

Figure2. The definition of ripple and spike



Ripple: V1 (p-p)
Spike: V2 (p-p)

V2

Drawn by	Reviewed by	Approved by	Series name:	Drawing No.
Yodo	石川	有野	HPCSA-570P-X2S	6172−01−4−520

Nipron co., Ltd.

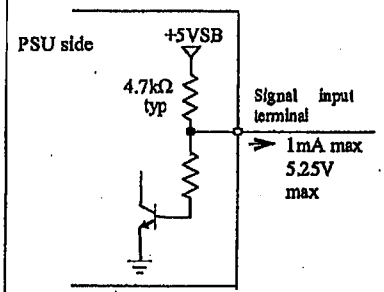
Input/Output signal specification

(Terms shall be provided at normal temperature and humidity unless otherwise specified)

Input signal	Output ON/OFF control signal (PS_ON#)	CH1 to CH4 shut down at 'H' or 'OPEN' input
	+3.3V SENSE	Input terminal for voltage detection of CH1 (+3.3V); voltage drop of +side output cable is compensated when connected to load end
	Fan control signal (FAN_C)	Control terminal of a fan motor Fan motor operates at a maximum speed upon receipt of 'L'
Output signal	Normal output signal (PWR_OK)	'H' is delivered at normal output (Detection delay time: 100 to 500ms)
	Fan monitoring signal (FAN_M)	Two pulses per rotation of individual motors are delivered

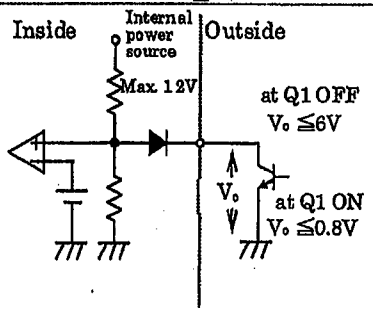
Input signal circuit

PS_ON



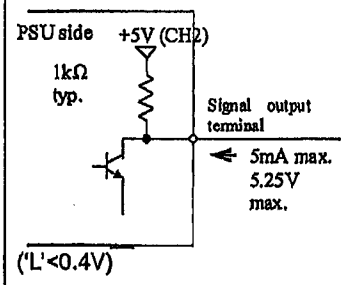
('L' ≦0.8V,2.0V≦ 'H')

FAN_C



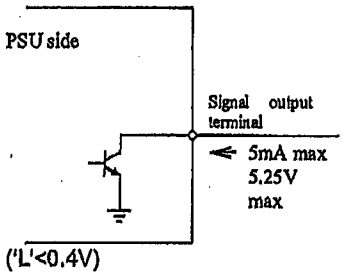
Output signal circuit

PWR_OK



('L'<0.4V)

FAN_M



('L'<0.4V)

Note:

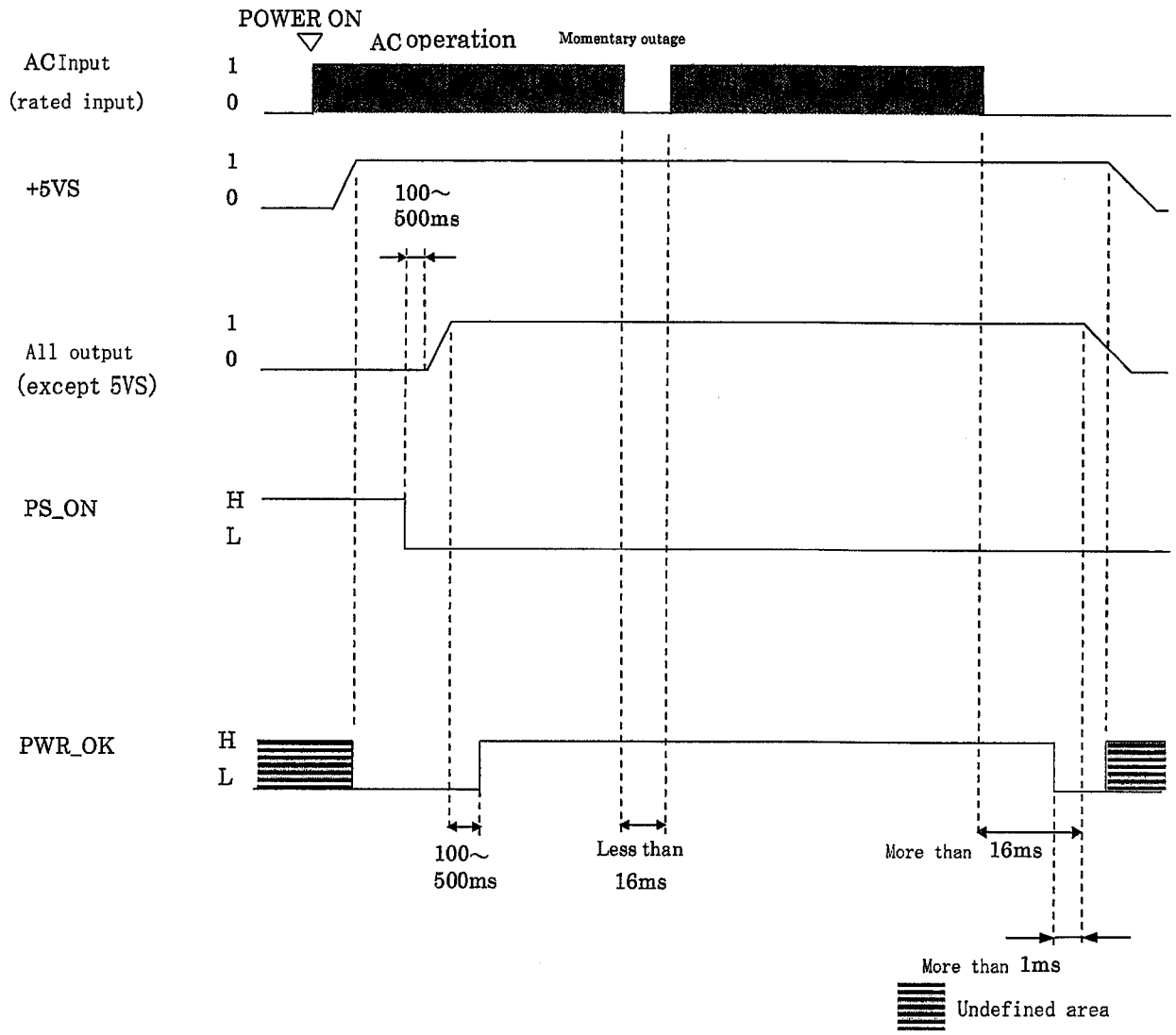
出図 20.10.27 (株)ニプロン 技術管理

A: ⚠ ×1 Dec. 16th, 2019 YODO

Drawn by	Reviewed by	Approved by	Series name:	Drawing No.
Yodo	内田	TTC '19.12.18 有野	HPCSA-570P-X2S	6172−01−4−520 A

Sequence specification

(All items shall be provided at normal temperature and humidity unless otherwise specified)



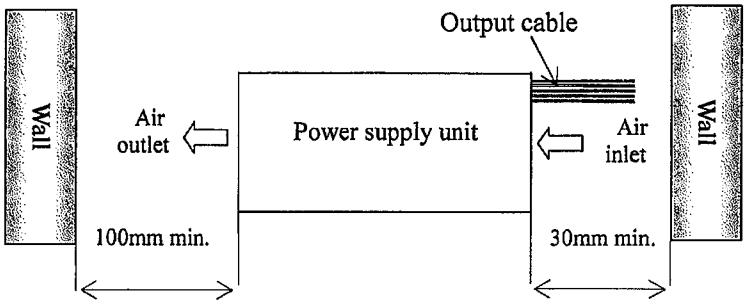
Drawn by	Reviewed by	Approved by	Series name:	Drawing No.
Yodo	石川	有野	HPCSA-570P-X2S	6172−01−4−520

Nipron co., Ltd.

Installation condition

1. This power supply unit should be installed with the clearance as shown below from the wall to its air inlet and outlet.

2. Temperature around the air inlet area of the power supply unit should not exceed the maximum operating temperature.



Derating Conditions

Follow the item 1 and 2 below to derate output current and power in operation at high temperature and low input voltage. For Continuous and Peak rating, max. output current of each CH specified in output specification shall be regarded as 100% of load factor. Also, when total power between channels is provided, total of those powers shall be regarded as 100% of load factor.

1. When the ambient temperature adjacent to the air inlet exceeds 45°C, follow the load factor shown in Fig.1 for continuous and peak rating.

2. When input voltage is 90V or less at operation of continuous rating and peak rating, follow the load factor shown in Fig.2. In addition, when the ambient temperature exceeds 45°C, the load factor shall be the load factor shown in Fig 2 multiplied by the load factor shown in Fig.1.

Cross regulation

The total voltage regulation of CH2 (5V) and CH3 (12V) is defined by the combinatorial range shown in Fig.3 Cross regulation.
It should be used within the combinatorial power between each CH.

Figure1. Derating curve for temperature

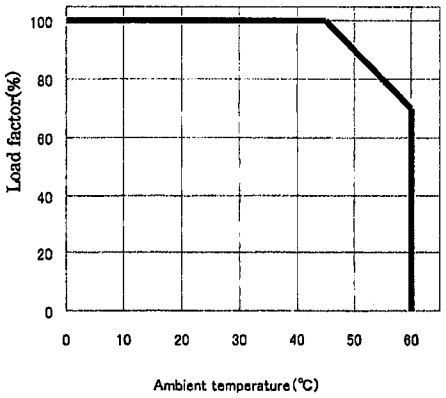


Figure2. Derating curve for low input voltage

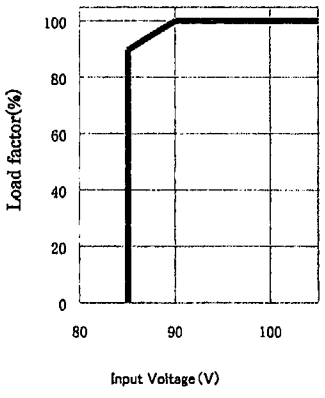
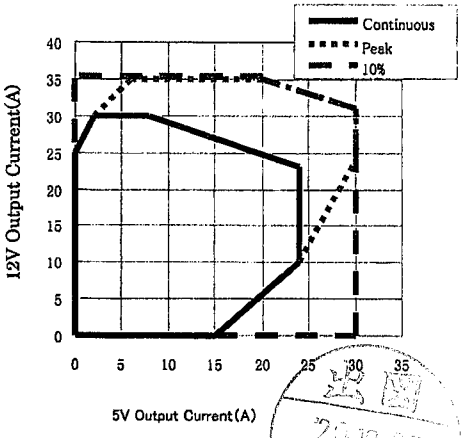


Figure3. Cross regulation



Drawn by	Reviewed by	Approved by	Series name:	Drawing No.
Yodo	石川	有野	HPCSA-570P-X2S	6172−01−4−520

Nipron co., Ltd.

Current ratings of output connector pins

The maximum allowable continuous current for each of output connector pins is shown in Table below.

The sum of the shared currents for the same output must be less than the maximum current specified for each output.

Connector	Pin	Output	Max. current	Note
MAIN1 (Output 1)	1	+3.3V	6.0A	
	2	+3.3V SE	-	+3.3V Sensing input
	3	+12V	6.0A	
	4	+5V	6.0A	
	5	+5V	6.0A	
	6	COM	6.0A	
	7	COM	6.0A	
	8	COM	6.0A	
	9	COM	6.0A	
	10	-12V	0.5A	
	11	+5VSB	3.0A	
	12	+3.3V	6.0A	
	13	+3.3V	6.0A	
	14	+12V	6.0A	
	15	+5V	6.0A	
	16	+5V	6.0A	
	17	COM	6.0A	
	18	COM	6.0A	
	19	COM	6.0A	
	20	COM	6.0A	
	21	PWR_OK	5.0mA	Signal output
	22	PS_ON	1.0mA	Signal input
MAIN2 (Output 2)	1	+5V	6.0A	
	2	+3.3V	6.0A	

出図
2013.10.27
㈱ニプロン
技術管理

Drawn by	Reviewed by	Approved by	Series name:	Drawing No.
Yodo	石川	有野	HPCSA-570P-X2S	6172−01−4−520

Current ratings of output connector pins

Connector	Pin	Output	Max. current	Note
12V1-2 (Output 3-4)	1	COM	6.0A	
	2	COM	6.0A	
	3	COM	6.0A	
	4	COM	6.0A	
	5	+12V	6.0A	
	6	+12V	6.0A	
	7	+12V	6.0A	
	8	+12V	6.0A	
HD (Output 5)	1	+3.3V	6.0A	
	2	+5V	6.0A	
	3	COM	6.0A	
	4	COM	6.0A	
	5	+12V	6.0A	
	6	+3.3V	6.0A	
	7	+5V	6.0A	
	8	COM	6.0A	
	9	COM	6.0A	
	10	+12V	6.0A	
SIG (Output 6)	1	NC	-	
	2	NC	-	
	3	NC	-	
	4	FAN_C	-	Signal input
	5	FAN_M	5.0mA	Signal output
	6	PS_ON	1.0mA	Signal input
	7	COM	2.0A	
	8	+3.3V SE	-	+3.3V Sensing input
	9	NC	-	
	10	+5VSB	2.0A	

出図
26.10.27
㈱ニプロン
技術管理

Drawn by	Reviewed by	Approved by	Series name:	Drawing No.
Yodo	石川	有野	HPCSA-570P-X2S	6172−01−4−520

Warnings and Cautions on operation

1. WARNING: ⚠ Grounding
   This power supply is designed as safety class I apparatus. For operator safety, be sure to ground the power supply by connecting the Earth terminal to earth ground.

2. WARNING: ⚠ Electrical shock hazards
   This power supply is designed for integrating. High potentials exist inside the power supply. When integrating the power supply into an instrument or system, use appropriate safe procedure to avoid electrical shock hazards.

3. CAUTION: ⚠ Output shortage
   Do not get output terminals shorted. When shorted, internal capacitors discharge at once to cause serious accident due to spark, etc. resulting in shortening lifetime of this unit.

4. CAUTION: ⚠ Inrush current limiting circuit
   Power thermistor is used to limit surge current to smoothing capacitors when AC input is turned on. When AC input is turned on shortly after AC input is turned off, excess surge current may flow as the power thermistor is still hot Make sure to turn on AC input 60 seconds or longer after AC input is turned off.

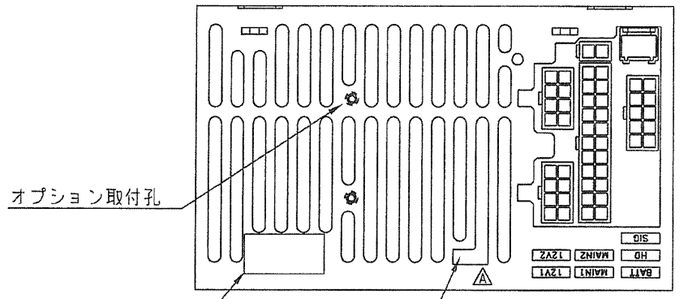
5. Acoustic noise at power-on
   Low frequency acoustic noise may be heard at turn-on of input or power-on by REMOTE ON/OFF signal. This noise is caused by low frequency transient vibration of choke coils for harmonic measures. This will not affect performance or lifetime at all.

6. Output cable handling
   Do not grab only output cables to move or carry this unit. Make sure to hold the main body while moving or carrying.

出図
'20.10.27
㈱ニプロン
技術管理

Drawn by	Reviewed by	Approved by	Series name:	Drawing No.
Yodo	石川	有野	HPCSA-570P-X2S	6172−01−4−520

Nipron

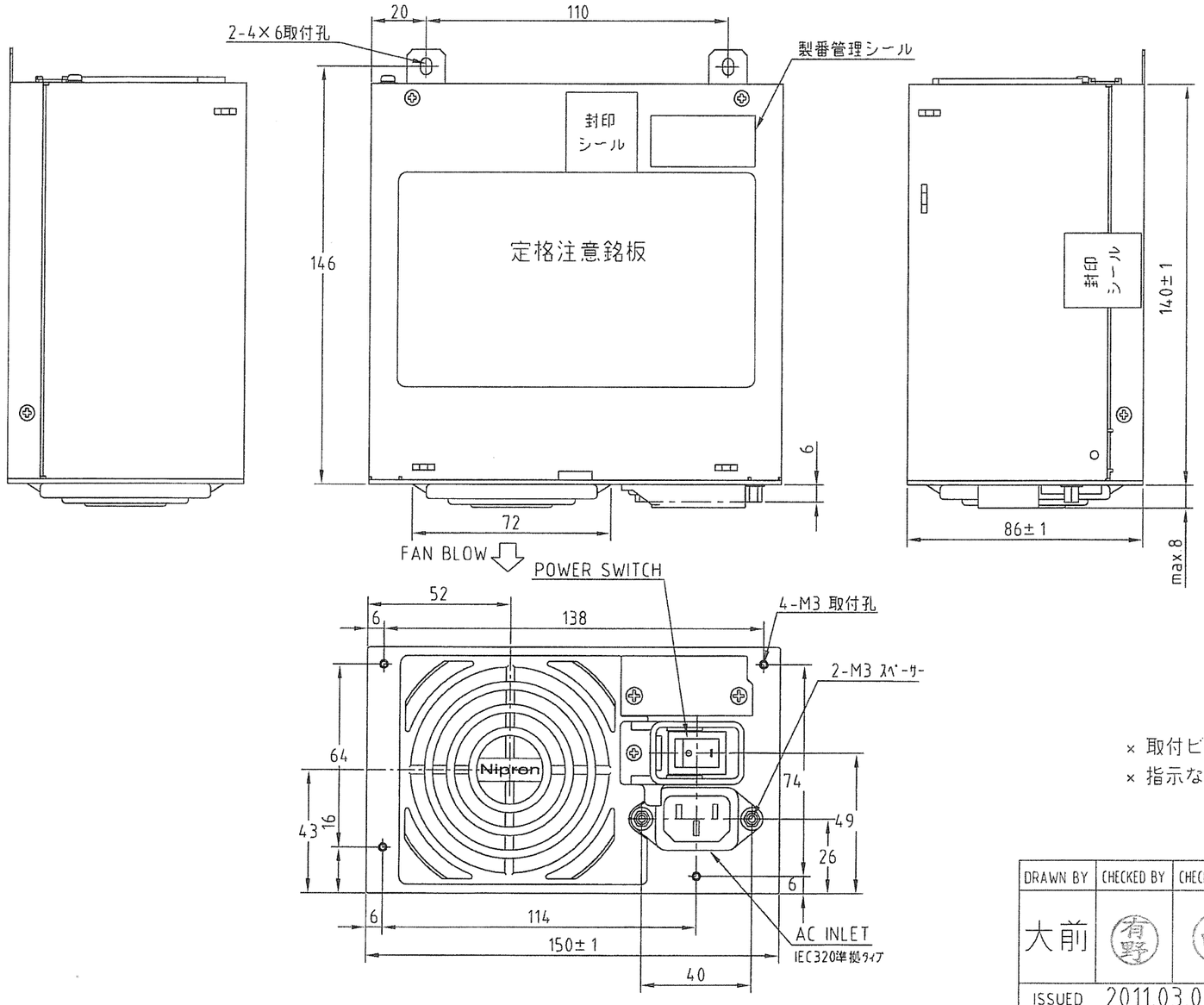


SIG
S10B-PADSS-1(JST) or Equivalent

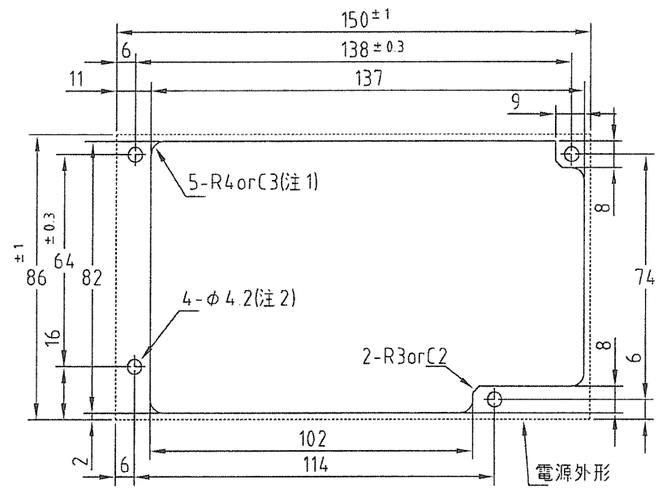
HD
CP-01310130(CviLux) or Equivalent

MAIN1 / MAIN2
CP-01322130/CP-01302130(CviLux) or Equivalent

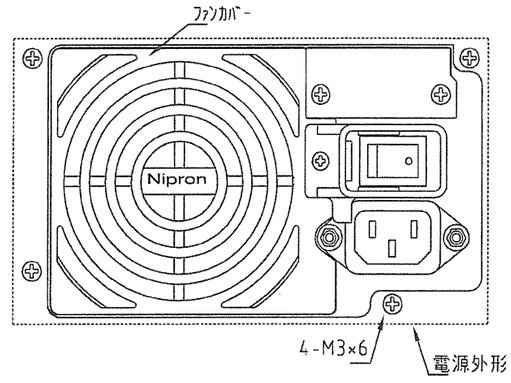
12V1 / 12V2
CP-01308130(CviLux) or Equivalent



推奨電源取り付け穴加工図



注1：R4 or C3 の値は小さくても可
注2：取付用ねじ穴



電源をパソコン等のキョウ体に取り付けた状態で
ファン交換を行う場合は指定の穴加工を施して下さい。

× 取付ビスの電源ケース表面よりの内部侵入深さ Max 12 mm
× 指示なき寸法公差は ±0.5 とする

出図
11.6.10
㈱ニプロン 技管-1

⚠×2 2010.05.18 I-230515

DRAWN BY	CHECKED BY	CHECKED BY	APPROVED BY	SCALE	×	MATERIALS		HPCSA-570Pシリーズ
大前	有野	西	屋	UNITS	m/m	FINISH	TITLE	外形図
ISSUED 2011.03.04				3RD ANGLE PROJECTION			DRAWING NO.	6172-01-3-050 A

株式会社 ニプロン