



MODEL NO : MPS120024-CI 24.0V/5.0A (standard)
ENGINEERING SPECIFICATION SHEET

Purpose: This specification document represents the design criteria of the product identified herein, for the approval of the designated recipient (customer). Prior to production and delivery of this product by CWT, the customer shall endorse its approval of this specification document, upon review of the detailed information provided herein. The customer's endorsement (approval) verifies that the product description is determined to be fully compliant to the customer's design requirements. If one or more samples are included with this specification, the customer's endorsement (approval) further verifies that the product has been tested by the customer, for which the product satisfactorily meets all aesthetic, mechanical, electrical, and operating requirements for its intended usage with the customer's suitable indoor equipment or applications.

To Approve: An authorized employee or agent of the customer shall endorse approval of this specification. Please sign & date this cover-page, and initial each subsequent page in the lower left corner to signify all sections have been read and found to be acceptable. A completed, original copy (signed, dated, initialed) of this specification must be returned to CWT to record the approved customer design. The customer shall keep one or more copies for its records. Upon receipt, CWT shall manufacture the product to the approved customer design. If design revisions are otherwise required, a revised specification and/or modified samples shall be provided by CWT for the endorsement (approval) by the customer.

CHANNEL WELL TECHNOLOGY (CWT)
CWT KOREA

VERSION: UPDATED	MPS120024 - CI 24V/5A
Specification No.: 20250113	DIN 4PIN(1,3: - ,2,4: +)*1,200

[illegible]

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1 SCOPE

This document describes basic electrical characteristics and mechanical characteristic of [120W](#) medical power supply adapters.

2 ELECTRICAL SPECIFICATION

2.1 INPUT REQUIREMENT

2.1.1 INPUT VOLTAGE RANGE

Industrial power supply shall operate within input specification from 90Vac to 264Vac or provide automatic switching between high line and low line input ranges. The table below shows common input voltage range.

Input Range	Minimum	Nominal	Maximum	Unit
	90 V	100V-240V	264V	Vac Rms

Table 1 - Input Voltage Range

2.1.2 INPUT FREQUENCY RANGE

The industrial power supply shall operate within specification from 47 to 63 Hz.

2.1.3 AC INRUSH CURRENT

Peak inrush current should not exceed [140A](#) at 240Vac, 50Hz, 25 degrees C, cold start. It should not interrupt line fuse or cause damage to the industrial power supply either at cold or warm start.

Peak inrush current should not exceed [80A](#) at 100Vac, 60Hz, 25 degrees C, cold start. It should not interrupt line fuse or cause damage to the industrial power supply either at cold or warm start.

The inrush current must be limited to the extent that no damage is done to the supply under any specified line, load, and temperature conditions. The inrush current shall not cause any external protection devices (i.e. fuses) to trip.

2.1.4 INPUT CURRENT

Maximum steady state input current shall not exceed [1.8A](#) for any line voltage specified in 2.1.1.

2.1.5 LEAKAGE CURRENT

0.25mA maximum at 240Vac 50Hz

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2.1.6 POWER FACTOR

0.90Min at 100Vac/60HZ or 240Vac/50HZ full load

2.1.7 INSULATION RESISTANCE

Insulation resistance shall be more than 50M ohm between primary and secondary.

2.1.8 LOW POWER CONSUMPTION

Vin	Load	Power consumption
240Vac/50Hz 100Vac/60Hz	0A	$\leq 0.15 \text{ W}$

2.2 INPUT PROTECTION

2.2.1 INPUT CURRENT PROTECTION

A fuse with rating of **8.0A / 250V** (Time Lag type) shall be installed on the input L line.

A fuse with rating of **3.15A / 250V** (Time Lag type) shall be installed on the input N line.

2.3 OUTPUT REQUIREMENT

2.3.1 OUTPUT POWER

The total output power, under steady state conditions, shall not exceed **120W**.

2.3.2 OUTPUT VOLTAGE AND CURRENT

Under any combination of line and load variation and environmental conditions, all outputs shall remain within tolerance as defined in Table 2. Output voltage(s) shall be measured at the load side of output connector.

Output Voltage	Voltage Range		Current Range		
	Lower Limit	Upper Limit	Minimum Load	Full rated load	PK Load
+24.0V	23.00V	25.00V	0.0A	5.0A	6.5A@10S

Table 2 - Output Voltage and Current

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2.3.3 RIPPLE AND NOISE

Measurements shall be made with an oscilloscope with minimum of 20MHz bandwidth and 1:1 scope Probe, Output shall be bypassed at the connector with a 0.1μF ceramic disk capacitor and a 47μF electrolytic capacitor for general testing purpose.

Output Voltage	Maximum Ripple & Noise (Vp-p)
+24.0V	240mV

Table 3 – Ripple and Noise

2.3.4 OVER VOLTAGE PROTECTION

The power supply shall provide with over voltage protection such that under any single component failure.

The overvoltage protection test load is 10%~100%, maximum value is 33.0V

2.3.5 OVER CURRENT PROTECTION

The power supply shall be protected when operating any output in overload condition. The power supply shall be shut down and no any damage when the over current condition occurs on the output, bandit will be auto-recovered when the failure is removed.

Output Voltage	Over current protection		Test condition
	Lower Limit	Upper Limit	Input voltage:100Vac 60Hz or 240Vac 50Hz.
+24.0V	6.7A	12.00A	

Table 4 –Over current protection

2.3.6 OVERSHOOT

During turn on or turn off, the output overshoot shall not exceed nominal output voltage by more than 5%, and output shall not change its polarity with respect to its return line.

2.3.7 SHORT CIRCUIT PROTECTION

Power supply shall have self-limiting protection to protect against short circuit or overload conditions. No damage to the power supply shall result from a continuous or intermittent short circuit condition. It will be auto-recovered when the failure is removed.

2.3.8 AUDIBLE NOISE

There is no audible noise canned been heard when it work with rated spec.

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2.4 PERFORMANCE REQUIREMENT

2.4.1 EFFICIENCY

Active average mode Efficiency (watt out / watt in) shall be a minimum of 89.00% at 230vac/50Hz.

Active average mode Efficiency (watt out / watt in) shall be a minimum of 89.00% at 115vac/60Hz.

Complies to EPA DOE standard specification and EU CEC standard specification (Level VI).

calculate the model is single average active mode efficiency for each test voltage by testing at 100%,75%,50%,and 25% of rated current output and then computing the simple arithmetic average of these four values respectively at 115V/60HZ and 230V/50HZ test result for reference.

Efficiency (watt out / watt in) shall be a minimum of 79.00% at 10% full load.

Note: when testing efficiency, adapter needs to electrify to perform after full load 60 minutes

Input voltage 115Vac 60Hz or 230Vac 50Hz

2.4.2 TURN ON DELAY TIME

Output shall reach steady state within 3seconds of turn on at 100Vac or greater.

Output shall reach steady state within 2seconds of turn on at 240Vac or greater.

2.4.3 HOLD-UP TIME

Hold-up time shall be a minimum of 10mS at 100Vac / 60Hz input.

2.4.4 DYNAMIC LOAD

Power supply output voltage tolerance shall be complied with $\pm 5\%$.

Step load change: from 50% to100% Load on the output.

Dwell Time: 100Hz & 1 KHz 50% duty.

Slew rate: 0.5A/uses

3 ENVIRONMENTAL SPECIFICATION

3.1 TEMPERATURE

Operation within specification: -10 to 40 degrees C.

Storage: -20 to 85 degrees C

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3.2 HUMIDITY

Operation: 10% to 90% relative humidity, non-condensation.

Storage: 5% to 95% relative humidity, including condensation.

3.3 VIBRATION AND SHOCK

The power supply shall be designed to withstand normal transportation vibration per MIL-STD-810F, method 514 and procedures X, as it is mounted in the chassis assembly and packed for shipping.

3.4 ALTITUDE

The power supply shall operate properly at any altitude between 0 ~ 16,404 feet (5000 meter) above sea level, and withstand storage at 50,000 feet.

3.5 CALCULATED MEAN TIME BETWEEN FAILURES (MTBF)

The MTBF for the power adapter shall equal or exceed **100,000** hours when operated at full rated load in an ambient temperature of 25 degree C.

3.6 BURN-IN

Burn-in test:

Test condition: 110Vac / 220Vac 50Hz, with 100% maximum load at 40 ±2°C ambient temperature.

Test method:

Burn-in 110 minutes; and 30 seconds "ON", 30 seconds "OFF" within 5 minutes, then 5 minutes "ON"

Test criteria:

During this conditioning the power supply output normal and no damage or hazardous condition will occur.

ORT and life test:

Input condition:

110Vac / 220Vac 50Hz, "ON/OFF" 10 times within 5 minutes, 45 minutes "ON" 45 minutes "OFF"

Test condition:

Cycle by cycle test 168 hours with 100% maximum load at 40 ±2°C ambient temperature

Test criteria:

During this conditioning the power supply output normal and no damage or hazardous condition will occur.

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4 RELATED SPECIFICATION

4.1.1 EMI

FCC (47 CFR Part 15, Subpart B, Class B limits)

EN60601-1-2 Class-B limits (HOME HEALTHCARE ENVIRONMENT)

4.1.2 DIELECTRIC STRENGTH—(HI-POT)

Primary to secondary: **4000Vac.**

Test time: 60 second

Cut-off current: 10mA max / Arcing current: 10mA max

4.1.3 SURGE

It is referring to EN61000-4-5 IEC61000-4-5:2001.

Differential mode surge immunity: 1KV

Common-mode Surge Immunity: 2KV

*** Determination level: Criteria B (Product testing and testing before and after any change in function is not)**

4.1.4 ELECTROSTATIC DISCHARGE ESD

It is referring to EN61000-4-2, IEC61000-4-2:2001, IEC801-2Level 4.

Contact electrostatic discharge: + - 8KV.

Air electrostatic discharge: + -15KV.

*** Determination level: Criteria B (Product testing and testing before and after any change in function is not)**

4.1.5 RF IMMUNITY

It is referring to IEC61000-4-3 Class A 10V/m

4.1.6 ENVIRONMENT STANDARDS

RoHS Regulation

The RoHS compliance symbol will be included on the data plate.

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4.1.7 ELECTRICAL FAST TRANSIENTS (EFT)

It is referring to IEC61000-4-4 Class B Test Voltage: 2KV

4.1.8 CONDUCTED IMMUNITY

It is referring to IEC61000-4-6 3V and 6V at ISM frequency

4.1.9 POWER FREQUENCY MAGNETIC FIELD

It is referring to IEC61000-4-8 30A/m

5 MECHANICAL

5.1 INPUT CONNECTOR AND OUTPUT CABLE

5.1.1 INPUT CONNECTOR

AC Input connector shall be IEC320 C8 or C18 power connector.

5.1.2 OUTPUT CABLE

Please read the reference to FIG.

5.1.3 POWER SUPPLY MONOMER MAXIMUM WEIGHT

Power supply monomer maximum weight of 520 grams

5.2 AC ADAPTER EXTERNAL DIMENSION

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NOTES:

- MATERIAL:**
Base on grid 50# Dumb white PET(網格底50#啞白PET)
WITH ADHESIVE ON THE BACK.
THE BACK ADHESIVE MUST CONFORM TO THE UL REQUIREMENT.
THE LABEL IS NOT ALLOWED TO CURLE UPWARDS OR WINKLE
AT 80 °C FOR 2 HOURS.
- PRINTED:**
BLACK BACKGROUND WITH WHITE CHARACTERS.
- 表面處理:**啞膜
- 厚度:**0.10~0.15mm

Material standard of environmental protection:

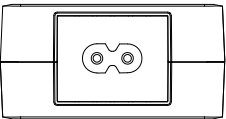
No	Hazardous Substances	Content Standards	GENERAL TOLERANCE ± (UNLESS OTHERWISE SPECIFIED)				D01	NEW					
1	銅 (Cu)	< 56 ppm	LEVEL DIMENSION	SELECT LEVEL:			ANGULAR TOLERANCE	REV.	DESCRIPTION				
2	鉛 (Pb)	< 700 ppm		A	B	C			UNIT: mm	MODEL NO.: MPS120024-CI			
3	汞 (Hg)	< 700 ppm	X < 8	± 0.1	± 0.15	± 0.2	± 0.3°	 Channel Well Technology Co., Ltd.	MATERIAL	PART NO.: G35-D*			
4	六價鉻 (Cr ⁶⁺)	< 700 ppm								DRAWING NO.:			
5	多環聯苯 (PBB)	< 700 ppm	8 ≦ X < 20	± 0.1	± 0.2	± 0.3	± 0.5°	APPROVED	SAFETY	CHECKED	DESIGNED		
6	多環二苯醌 (PBDE)	< 700 ppm											
7	鄰苯二甲酸二(2-DEHP)	< 700 ppm	25 ≦ X < 100	± 0.15	± 0.25	± 0.4	± 0.5°	黃照云	ken.hu	易松华	管典锋	SCALE:	
8	鄰苯二甲酸二(2-DBP)	< 700 ppm											
9	鄰苯二甲酸二(2-DBP)	< 700 ppm	100 ≦ X < 300	± 0.2	± 0.3	± 0.5	± 1°	DATE: 2022.01.15	DATE: 2022.01.15	DATE: 2022.01.15	DATE: 2022.01.15	THIRD ANGLE PROJECTION	
10	鄰苯二甲酸二(2-DBP)	< 700 ppm											
11	包裝材料(Packaging materials)	總含量 < 100 ppm	300 ≦ X < 800	± 0.3	± 0.5	± 0.8	± 1.5°					1 OF 1	
12	多環芳烴化合物(PAHs)	NA											
 Channel Well Technology Co., Ltd.													M A4
DATE: 2022.01.15DATE: 2022.01.15DATE: 2022.01.15DATE: 2022.01.15													

A

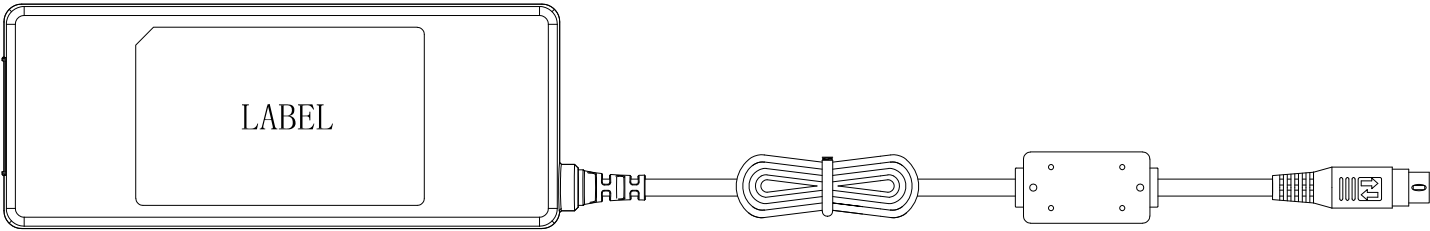
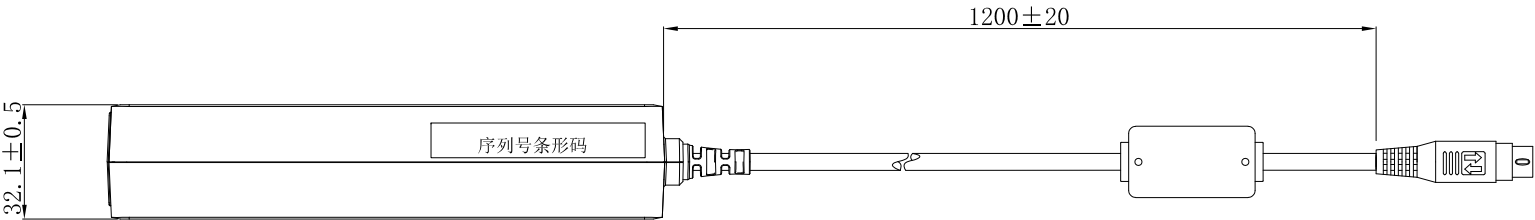
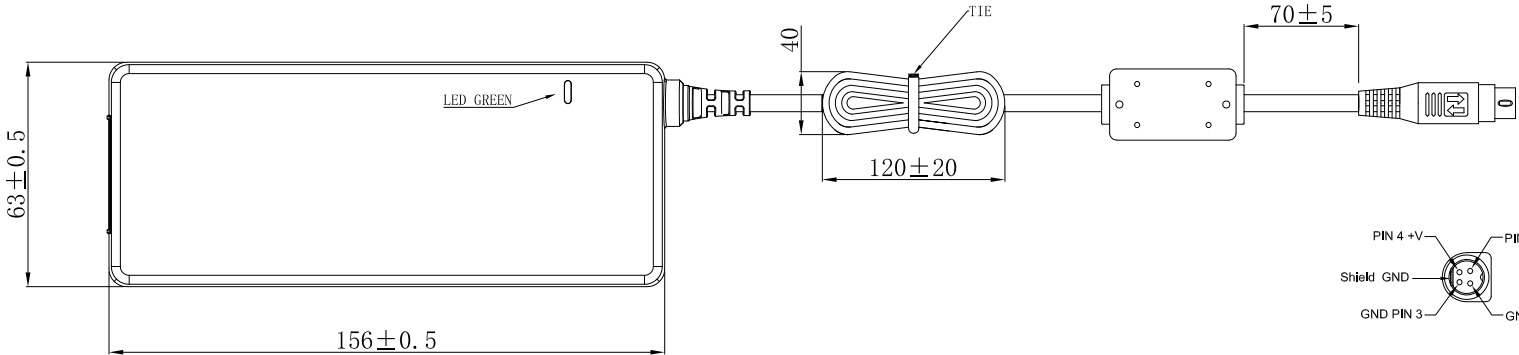
B

C

D



**AC INLET:
IEC-60320 C8**
AC INLET与CASE
間隙<=0.5mm,
段差<=0.8mm



環保材料標準:

No	有害物質名稱	含量標準	GENERAL TOLERANCE ± (UNLESS OTHERWISE SPECIFIED)				0.1	20250113	GDF	新制定			
1	鎘 (Cd)	<75ppm	LEVEL		SELECT LEVEL : x		ANGULAR	REV.	DATE	APPROVED	DESCRIPTION		
2	鉛 (Pb)	<800ppm	DIMENSION	A	B	C	TOLERANCE	 侨威科技			UNIT: mm	MODEL NO.:MPS120024	
3	汞 (Hg)	<800ppm	X < 8	±0.1	±0.15	±0.2	±0.3°				MATERIAL	PART NO:	
4	六價鉻 (Cr ⁶⁺)	<800ppm	8 ≤ X < 25	±0.1	±0.2	±0.3	±0.5°				*****	DRAWING NO.:	
5	多溴聯苯 (PBB)	<800ppm	25 ≤ X < 100	±0.15	±0.25	±0.4	±0.5°	APPROVED	CHECKED	DESIGNED			
6	多溴二苯醚 (PBDE)	<800ppm	100 ≤ X < 300	±0.2	±0.3	±0.5	± 1°	BIN	YJH	GDF	SCALE: 1: 1	SHEET	
7	鎘,鉛,汞,六價鉻,(包裝材料)	總含量<100ppm	300 ≤ X < 800	±0.3	±0.5	±0.8	±1.5°	DATE: 20250113	DATE: 20250113	DATE: 20250113	THIRD ANGLE PROJECTION	1 OF 1	M/XX

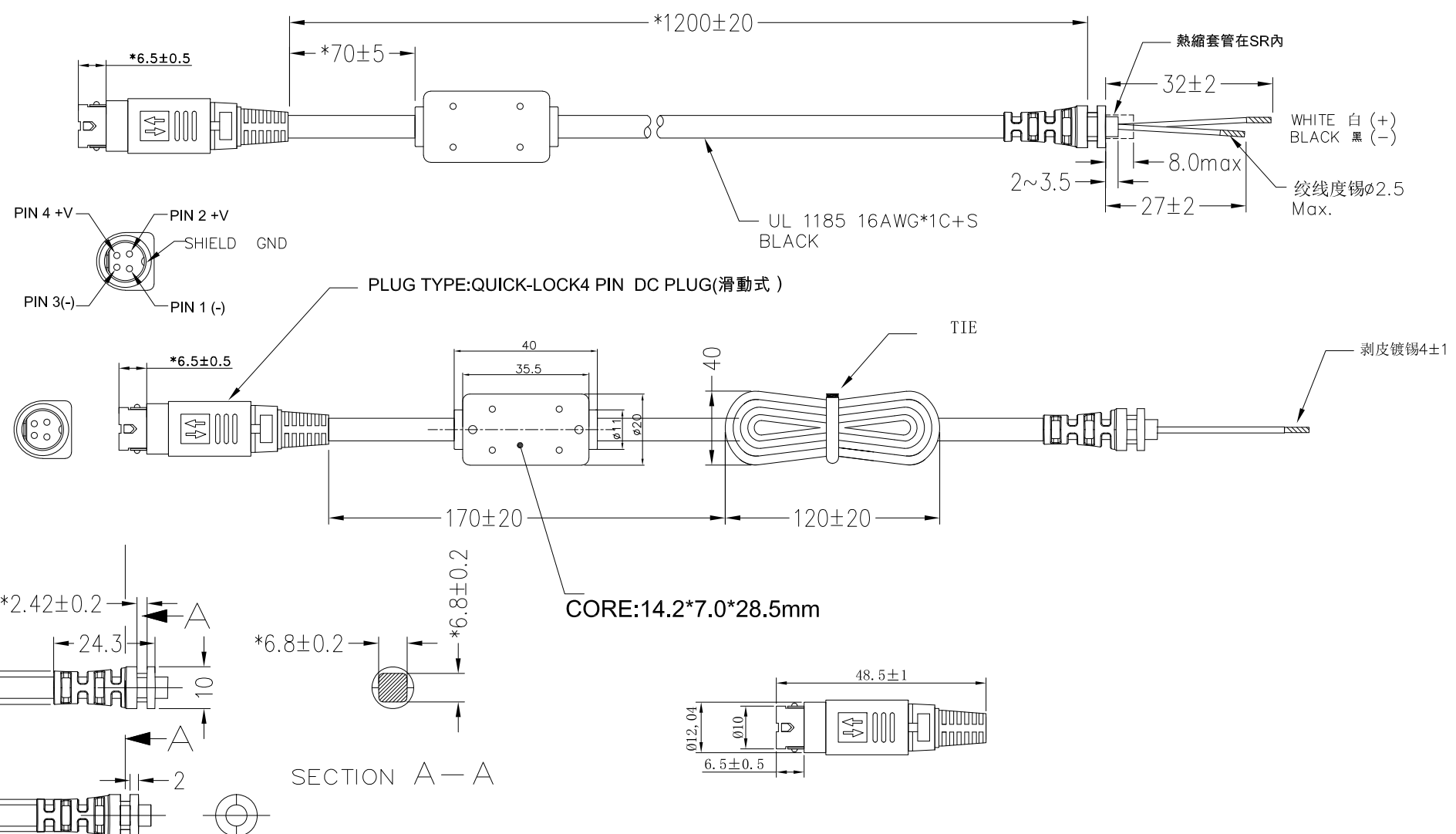
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1 2 3 4 5 6



註:
一.電性測試:
1.耐電壓:AC 500V 1秒,測試無異常.
2.絕緣抵抗:DC 500V 50MQ以上.
3.導通測試:無斷線、短路、極性反(芯線接內極).
二.拉力測試:電線與S/R間吊重 9Kg經過1分鐘
無斷線脫落等異常.
三.折曲測試:
電線吊重300g,左右各 60°往復搖擺,45次/分,
往復3,000 回後,不完全斷線且外觀無脫落、
斷裂等異常.

標*号为QC必须检查和确认的尺寸和内容
未标注公差为±0.5mm

環保材料標準:						
No	有害物質名稱	含量標準	SHEET METAL TOLERANCE (UNLESS OTHERWISE SPECIFIED)			
1	鎘 (Cd)	<75ppm				
2	鉛 (Pb)	<800ppm	DIMENSION	PIERCING	BENDING	ANGULAR
3	汞 (Hg)	<800ppm	$X < 8$	±0.1	±0.15	±0.3°
4	六價鉻 (Cr)	<800ppm	$8 \leq X < 25$	±0.1	±0.2	±0.5°
5	多溴聯苯 (PBB)	<800ppm	$25 \leq X < 100$	±0.15	±0.25	±0.5°
6	多溴二苯醚 (PBDE)	<800ppm	$100 \leq X < 300$	±0.2	±0.3	±1°
7	鎘, 鉛, 汞, 六價鉻, (包裝材料)	總含量<100ppm	$300 \leq X < 800$	±0.3	±0.5	±1.5°

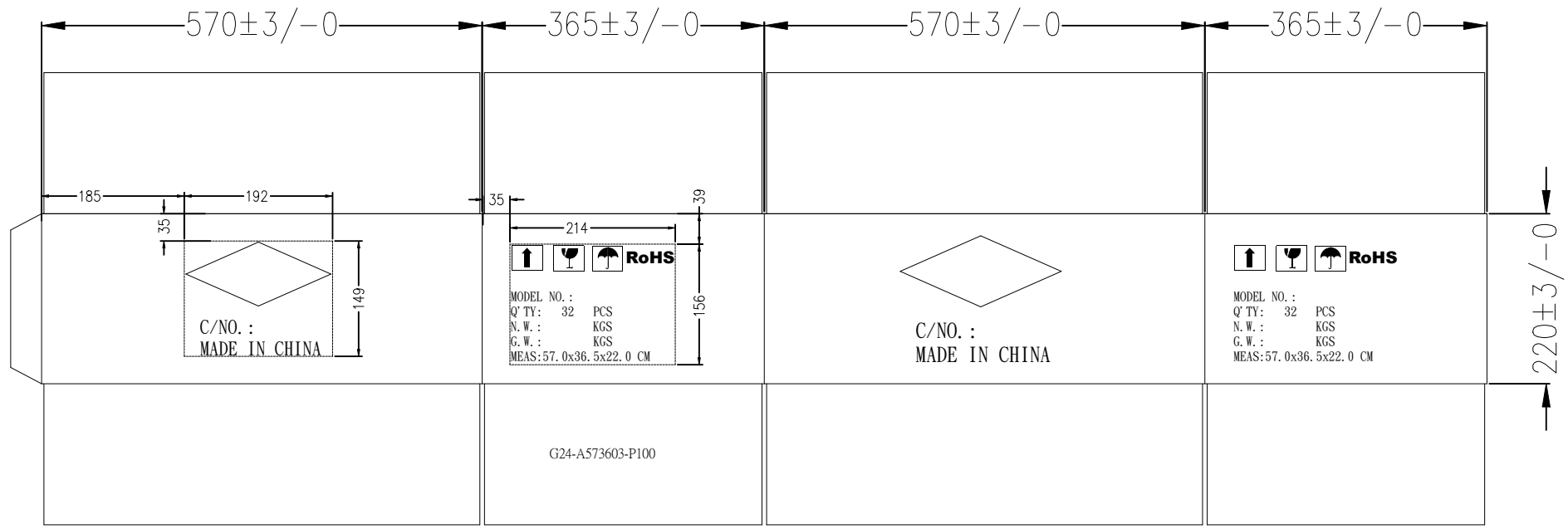
0.1	新制定	DESCRIPTION	
REV.		UNIT: mm	MODEL NO.: MPS120024-CI
		MATERIAL	PART NO.: G18-B*
			G18-B*
APPROVED	CHECKED	DESIGNED	DRAWING NO.:
B.ZHENG	Yi Tian Hua	QDF	SCALE: 1:1
DATE: 20250113	DATE: 20250113	DATE: 20250113	THIRD ANGLE PROJECTION
			SHEET 1 OF 1
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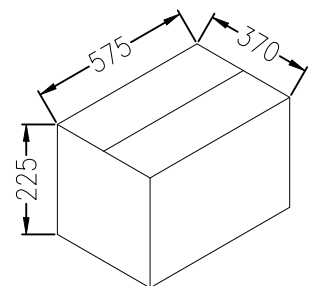
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虛線框為標示尺寸用, 不用印出

以上符號印刷為紅色
其它印刷為黑色



外尺寸參考

- NOTES:
- 1.材質：五層瓦楞紙(K/A)，破裂強度12.0KGS(MIN);最小綜合基重640g/m2;抗壓強度400KGS(MIN);邊壓強度6.0KN/M(MIN)
 - 2.厚度：6±0.5mm.
 - 3.搭配誤差：與格板之間間隙要大於2mm,小於6mm.
 - 4.警告標志及ROHS印刷顏色：紅色(PANTONE 1788C),其它字體印刷黑色.
 - 5.虛線為預折壓痕.
 - 6.請依圖面標示尺寸制作.
 - 7.公差:其它未標注公差
 - ★ 圖形及字體公差:10mm以下為+/-1mm,11~50mm為+/-3mm,51mm以上為+/-5mm,特殊情況除外.
 - ★ 偏移公差:10mm以下為+/-2mm,11~50mm為+/-3mm,51mm以上為+/-5mm,特殊情況除外.
 - 8.結合方式（一體成形):打釘.
外箱最少要打三排釘;外箱尺寸較高時,打釘數要保證兩釘之間的距離要小於100mm,且間距保持基本均勻(公差+10/-10mm)
 - 9.所有材料需符合RoHS環保要求.

環保材料標準:

No	有害物質名稱	含量標準	SHEET METAL TOLERANCE (UNLESS OTHERWISE SPECIFIED)				單重:g		0.1			
									REV.		DESCRIPTION	
1	鎘 (Cd)	<75ppm	DIMENSION	PIERCING	BENDING	ANGULAR	僑威科技		UNIT: mm		MODEL NO.:MPS120	
2	鉛 (Pb)	<800ppm							MATERIAL		PART NO.:G24-A573603-P100	
3	汞 (Hg)	<800ppm	8 ≤ X < 25	±0.1	±0.2	±0.5°	*****		DRAWING NO.:			
4	六價鉻 (Cr)	<800ppm										
5	多溴聯苯 (PBB)	<800ppm	25 ≤ X < 100	±0.15	±0.25	±0.5°	APPROVED	CHECKED	DESIGNED			
6	多溴二苯醚 (PBDE)	<800ppm	100 ≤ X < 300	±0.2	±0.3	±1°	xp.zhang	wp.zhang	q.liu		SCALE:	
7	鎘,鉛,汞,六價鉻,(包裝材料)	總含量<100ppm	300 ≤ X < 800	±0.3	±0.5	±1.5°	DATE: 2022.12.19	DATE: 2022.12.19	DATE: 2022.12.19	THIRD ANGLE PROJECTION		SHEET 1 OF 1

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