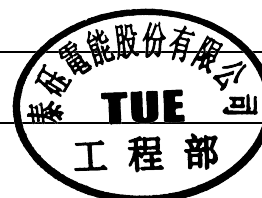


SPECIFICATION FOR REFERENCE

CUSTOMER	
CUSTOMER P/N	
MODEL No.	D900BC-B12S180A
PART No.	
DESCRIPTION	<p style="text-align: center;">D900BC Series</p> <p>TYPE: Balance Charger for 12S Li-Ion Battery</p> <p>Input: 100-240 VAC 50/60 Hz (C14 Inlet)</p> <p>Output: 50.4V / 18.0A Max. (偵測電池電壓後輸出)</p> <p>Charger : TW60M</p> <p>DC connector: Balancer: B13B-XH-A</p> <p>AC Core: 台規+品字尾 VCTF 1.25mm/3C, 11A/125V, 1.2M</p> <p>Firmware: CO03030-V00B00</p>
REVISION	A0



CUSTOMER APPROVED SIGNATURE	
Approval Signature	
Date	

Top-Unum Electronics Co., Ltd.	
Edited by	Tom
Checked by	Yuelin
Approved by	Robert
Date	2025/04/25

Revision History

Revision	DESCRIPTION		
	Before	After	Date
A0	X	Initial release	2025/04/25

Announcement 注意事項

Before charging, please connect the battery first, and then connect the AC power source.

After charging is complete, disconnect the AC power first, and then disconnect the charger from the battery.

充電之前，請先連接器電池，然後再連接交流電源。

充電完成後，請先斷開交流電源，然後將充電器與電池脫離。



Troubleshooting 故障排除

When the red LED is flashing.

當紅色 LED 閃爍時。

Disconnect the AC power, remove the abnormality, and then reconnect the AC power to normal.

斷開交流電源，排除異常，然後重新連接交流電源將可恢復正常。

If the fault condition persists, check the battery pack.

如果故障情況仍然存在，請檢查電池組。

SPECIFICATION

Characteristics 特性指標	SPECIFICATION 規格參數
Max. Charging Voltage 最大充電電壓	50.2V ± 0.2V (50.4V Max.)
Charging Current 充電電流	18.0A ± 0.3A Constant Current Mode
AC Input Voltage/Current 輸入電壓/電流	100Vac ~ 240Vac, 50/60Hz, 11.0A Max. (Range: 90Vac ~ 264Vac)
Efficiency 效率	86% min. @ 49.4V ± 1.0V and 18.0A rated load. (230VAC)
Power Factor 功率因數	0.9 min. @ 49.4V ± 1.0V and 18.0A rated load.
Charging characteristics 充電特性	Standby mode (not connected to battery): Vo: 無輸出 (偵測電池電壓後輸出)
	Battery Low: STOP charging when battery low, Red LED flashing. Vo: under 30.0V ± 1.0V, stop charging.
	Pre-Charge: 2.5V/Cell ~ 3.0V / Cell Vo: 30.0V~36.0V ± 1.0V, Io= 2.7 A ± 0.2A (Constant Current)
	CC Fast Charge: Vo: 36.0V~49.4V ± 1.0V, Io= 18.0A ± 0.3A (Constant Current)
	CV Mode: (Constant Voltage) Vo: >49.4V ± 1.0V Io= 18.0A → < 1.0A ± 0.2A
	Fully Charged: When the charging current is less than 1.0A, is defined as fully charged. The charger output is turned off and the green LED is on. Vo: 50.2V ± 0.2V (50.4V Max.) Io: < 1.0A, The Green LED ON
LED indicator 指示燈號	Standby mode: (not connected to battery) / Full Charged mode : The Green LED is ON.
	Charging Mode: The Red LED is ON.
	Fault mode: The Red LED is blinking.

Characteristics 特性指標	SPECIFICATION 規格參數
Environmental 環境要求	Operation Temperature 操作溫度 : -10 ~ 40 °C Storage Temperature 儲存溫度 : -20 ~ 80 °C Operation Humidity 操作濕度 : 10% - 90% RH Storage Humidity 儲存濕度 : 10% - 90% RH
Over voltage protection 過電壓保護	Output Voltage >52V, no output from charger, Red LED flashes. 電壓大於 52.0V · 停止充電並閃紅燈。
Under voltage protection 電池過低壓保護	Battery voltage < 30.0V, no output from charger, Red LED flashes. 電池電壓低於 30.0V · 停止充電並閃紅燈。
Over current protection 過電流保護	Charging current >19A, the charger stops charging and the red LED flashes. 充電電流大於 19A · 停止充電並閃紅燈。
Short circuit protection 短路保護	When an output short circuit occurs, the charger stops charging and the red LED flashes. 當發生短路現象, 停止充電並閃紅燈。
Reverse battery current 逆向電流	Reverse battery current < 1.0 mA
Recharge Mode	When the battery is fully charged, the charger stops charging and the battery must be completely removed to re-enable charging.
Timing Protection 定時充電保護	1) Pre-charge over 2 hrs, stop charging. 2) CC Fast Charge Mode over 10 hrs, stop charging. 3) CV Mode over 4hrs, stop charging
Mechanical Dimensions 機械尺寸	Dimensions 外觀尺寸: (L) 310mm* (W) 165mm* (H) 80mm (± 2.0mm) Net Weight: 2.9 Kg (approx.)
AC Inlet socket 輸入 AC 座	C14 (IEC60320)
DC Connector 輸出 DC 連接器	Charger : TW60M Balancer: B13B-XH-A
Insulation resistance 絕緣阻抗	500VDC: > 50Mohm
Dielectric strength 絕緣耐壓	3000VAC 5mA 1 minute
MTBF	> 250,000 hours MTBF @ 25° C
Environmental 環保要求	RoHS, REACH

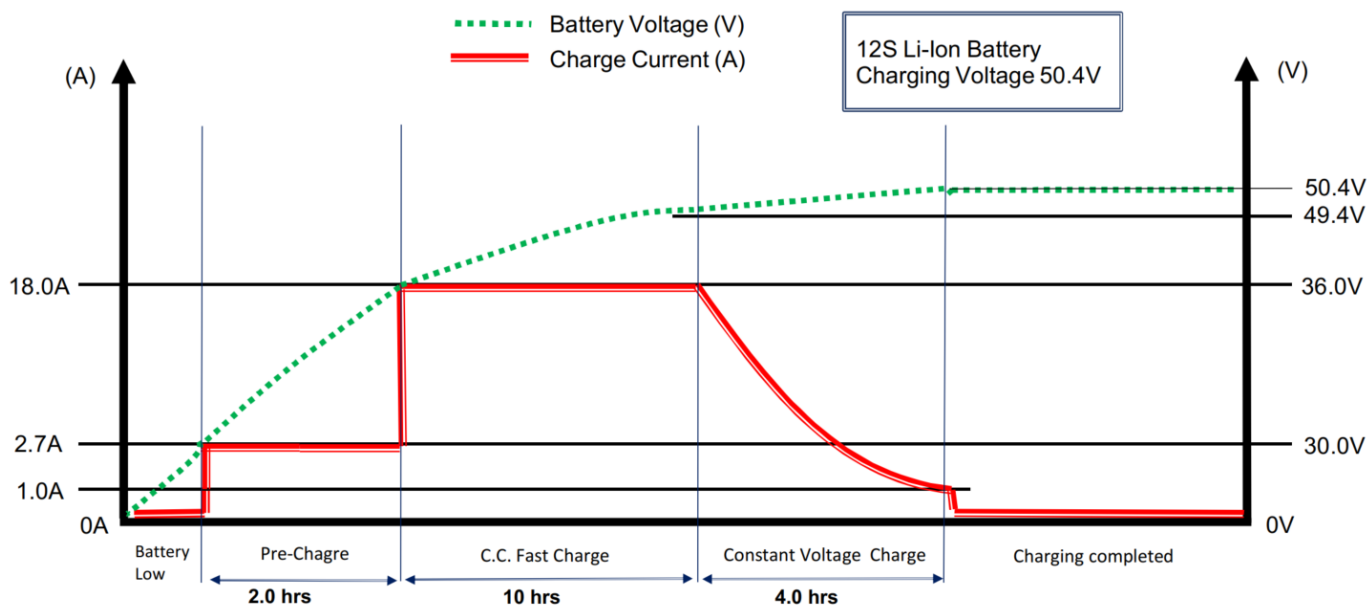
電池平衡器規格 12S Balancer

Characteristics 特性指標	SPECIFICATION 規格參數
平衡器功能說明	<ul style="list-style-type: none"> · 平衡線未連接只連接充電線 (平衡器指示燈號不亮): 平衡器不執行功能, 充電器停止充電。 · 只連接平衡線未連接充電線 (參閱平衡器指示燈號說明): 只能檢查電池電壓平衡狀態, 但無法充電。 · 平衡線與充電線皆正確連接 (參閱平衡器指示燈號說明): 任一串電池電壓 < 3.8V 時, 平衡器不執行功能, 充電器依電池電壓狀態進行相應電流充電。
Balancer indicator (平衡器指示燈號說明)	<p>綠色 LED 恆亮 : 電池間電壓差正常。 綠色 LED 閃爍 : 電池間電壓差過大, 執行平衡動作中。</p> <p>啟動平衡條件:</p> <ol style="list-style-type: none"> 1. 任一串電池電壓 > 3.8V 時 : 最大電壓與最小電壓差 > 50mV, 綠燈閃爍, 開始平衡。 直至最大電壓與最小電壓差 ≤ 30mV, 綠燈恆亮, 結束平衡。 <p>紅色 LED 恆亮 : 電池老化。 紅/綠 LED 閃爍 : 電池電壓過低。</p> <p>電池老化判斷條件:</p> <ol style="list-style-type: none"> 1. 任一串電池電壓 > 3.8V 時 : 最大電壓與最小電壓差 ≥ 100mV, 代表電池老化, 紅燈恆亮, 停止充電。 最大電壓與最小電壓差 < 50mV, 代表電池正常, 綠燈亮, 重啟充電。 2. 單串過充電壓 : 4.23V 當任一串電池 ≥ 4.23V, 代表過度充電, 紅燈恆亮, 停止充電。 單串過充恢復電壓 < 4.18V, 代表恢復正常, 綠燈亮, 重啟充電。 3. 任一串電池過低壓 : 2.3V 當任一串電池 < 2.3V, 代表電池過低壓, 紅/綠 LED 閃爍, 停止充電。需 移除平衡線, 更換電池。

電池平衡器規格 Balancer Box

characteristics	SPECIFICATION
Balancer function	<ol style="list-style-type: none"> 1. The balance cable is not connected and only the charging cable is connected. (The balance indicator light is off): The balancer does not perform its function and the charger stops charging. 2. Connect only the balancing cable without the charging cable (refer to the indicator light description of the balancer): Only checking battery voltage balance status but cannot charge. 3. The balance cable and charging cable are correctly connected (refer to the balance indicator light description): When the voltage of any battery string is less than 3.8V, the balancer will not function. The charger will charge the battery with appropriate current based on the voltage status.
Balancer indicator	<p>Balancing Indicator: Green LED</p> <ul style="list-style-type: none"> • Green LED solid on: Voltage difference between cells is normal. • Green LED Flashing: Voltage difference between cells is too large; balancing in progress. <p>Conditions for Starting Balancing: If the voltage of any cell is greater than 3.8V. When the voltage difference between the highest and lowest cell exceeds 50mV, Green LED blinks, and balancing starts. When the voltage difference is $\leq 30\text{mV}$, green LED light stays on, and balancing stops.</p>
	<p>Imbalance Indicator: Red LED</p> <ul style="list-style-type: none"> • Red LED off: battery balanced. • Red LED on: battery unbalanced. • Red/Green LED flashes alternately: battery voltage is too low. <p>Battery imbalance judgment conditions:</p> <ol style="list-style-type: none"> 1. If the voltage of any cell is greater than 3.8V: If the voltage difference between the highest cell and the lowest cell is $\geq 100\text{mV}$, the cells are unbalanced. The Red LED is on and charging stops. If the voltage difference is less than 50mV, the battery is normal. Red LED off and charging resumes. 2. Overcharge Voltage for Single Cell: 4.23V If any single cell $\geq 4.23\text{V}$, it's considered overcharged. The Red LED turns on, and charging stops. If the single cell overcharge recovery voltage is $< 4.18\text{V}$, it returns to normal, Red LED off and charging resumes. 3. Low Voltage for Single Cell: 2.3V When any cell is less than 2.3V, it means the battery voltage is too low, the Red/Green LED flashes alternately, and charging stops. The balance cable needs to be removed, and the battery should be replaced.

Charging curve 充電曲線



Charging Mode 充電模式

Mode	Output Voltage	Output Current	status
1 Battery Low 電池低壓	< 30.0V ± 1.0V	0A	STOP charging
	When the battery voltage is less than 30.0V during the charging, it is defined as battery damaged. The charger stops charging and the red LED flashes.		
2 Pre-Charge 欠預充電模式	30.0V~36.0V ± 1.0V	2.7A ± 0.2A	Constant Current
	Constant current charging. Red LED On. 定電流充電。		
3 C.C. Fast Charge 定電流快充模式	36.0V ~49.4V ±1.0V	18A ± 0.3A	Constant Current
	Constant current charging. Red LED On. 定電流充電。		
4 C.V. mode 定電壓充電模式	>49.4V± 1.0V	18A → 1.0A	Constant Voltage
	Constant voltage charging. Red LED On. 定電壓充電。		
5 Full Charged 充飽轉綠燈	50.2V± 0.2V (50.4V Max.)	< 1.0A	STOP Charging
	When the charging current is less than 1.0A, is defined as fully charged. The charger output is turned off and the green LED is on		
6 Standby mode 待機模式	無輸出	0A	Battery not connected
	電池未連接，無輸出。(偵測電池電壓後輸出)		
7 Recharge mode	None	-	-
	When the battery is fully charged, the charger stops charging and the battery must be completely removed to re-enable charging.		

Protection characteristics 保護功能

Timing Protection characteristics 定時保護功能

Status 保護狀態		SPEC 規格	Charging Status 充電器狀態
1	Pre-Charge 欠壓預充電模式	Battery voltage 30~36V ± 1.0V	Charging time: 2 hours Max. The battery voltage is still lower than 36V, Battery voltage is too low, stop charging, Red LED flashes. 充電時間： > 2 小時 · 電池電壓仍低於 36V · 電池電壓過低 · 充電器停止充電 · 紅色 LED 閃爍。
2	C.C. Fast Charge 定電流快充模式	Battery voltage 36~49.4V ± 1.0V	Charging time: 10 hours Max. If the charger uses constant current fast charge for more than 10 hours, it means that the battery capacity does not match. Charging will stop and the Red LED flashes. 充電時間： > 10 小時 如果充電器使用恆流快充 10 小時以上 · 表示電池容量不匹配 · 充電將停止 · 紅色 LED 閃爍。
3	C.V. mode 定電壓充電模式	Battery voltage >49.4V ± 1.0V	Charging time: 4 hours Max. If the charger uses the constant voltage mode to charge for more than 4 hours, it means that the battery capacity does not match. Charging will stop and the Red LED flashes. 充電時: > 4 小時 如果充電器使用恆壓模式充電超 4 小時 · 表示電池容量不匹配 · 充電將停止 · 紅色 LED 閃爍。

Safety & EMC requirement 安規與電磁相容

Mark Used		Country	Standard
1	CE (LVD)	Europe	EN 60335-1:2012/A15:2021, EN 60335-2-29:2004/A11:2018 EN 62233:2008
2	CE (EMC)	Europe	EN 55014-1:2017, EN 55014-1:2017/A11:2020 EN 55014-2:2015 EN 61000-3-2:2014, EN IEC 61000-3-2:2019 EN 61000-3-3:2013/A1:2019, EN 61000-3-3:2013
3	FCC	USA	47 CFR FCC Part15, Subpart B ANSI C63.4:2014

Label for reference

TUE 鋰電池充電器

型號：D900BC-B12S180A

輸入：100~240V \sim , 50/60Hz

輸出：50.4V \equiv 18.0A

製造商：泰碁電能股份有限公司
236新北市土城區新洲路100號10樓

台灣製造
MADE IN TAIWAN

T15.0A

使用環境溫度：-10°C~40°C

FW : CP03030_V00B00
SN : YYWWCCXXXX

YY: 年
WW: 周
CC: 客戶
XXXX: 流水號(0001~9999)

40x10 mm

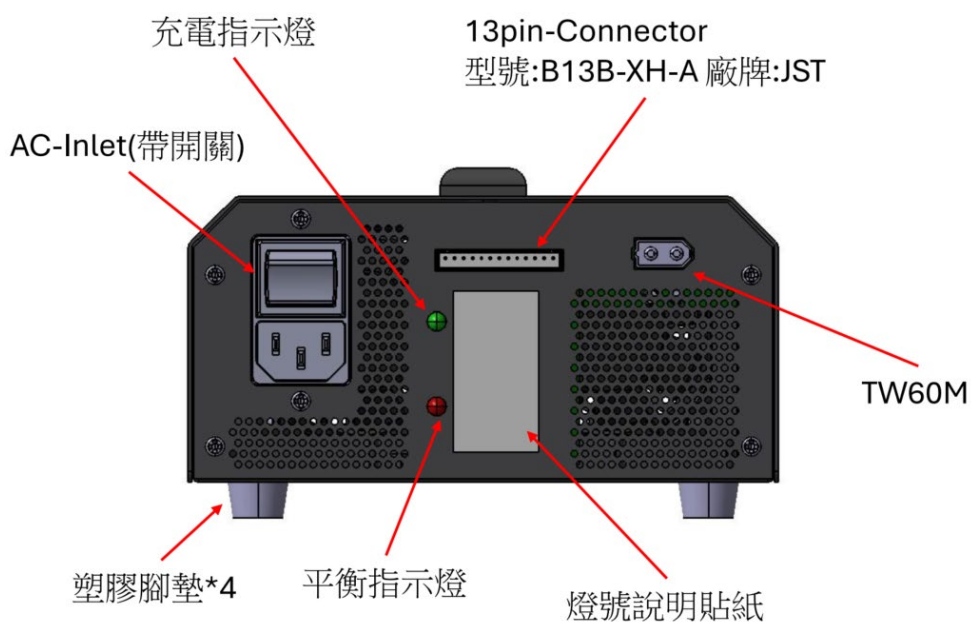
CP03030_D900BC-B12S180A_L0

Drawing 外觀尺寸圖

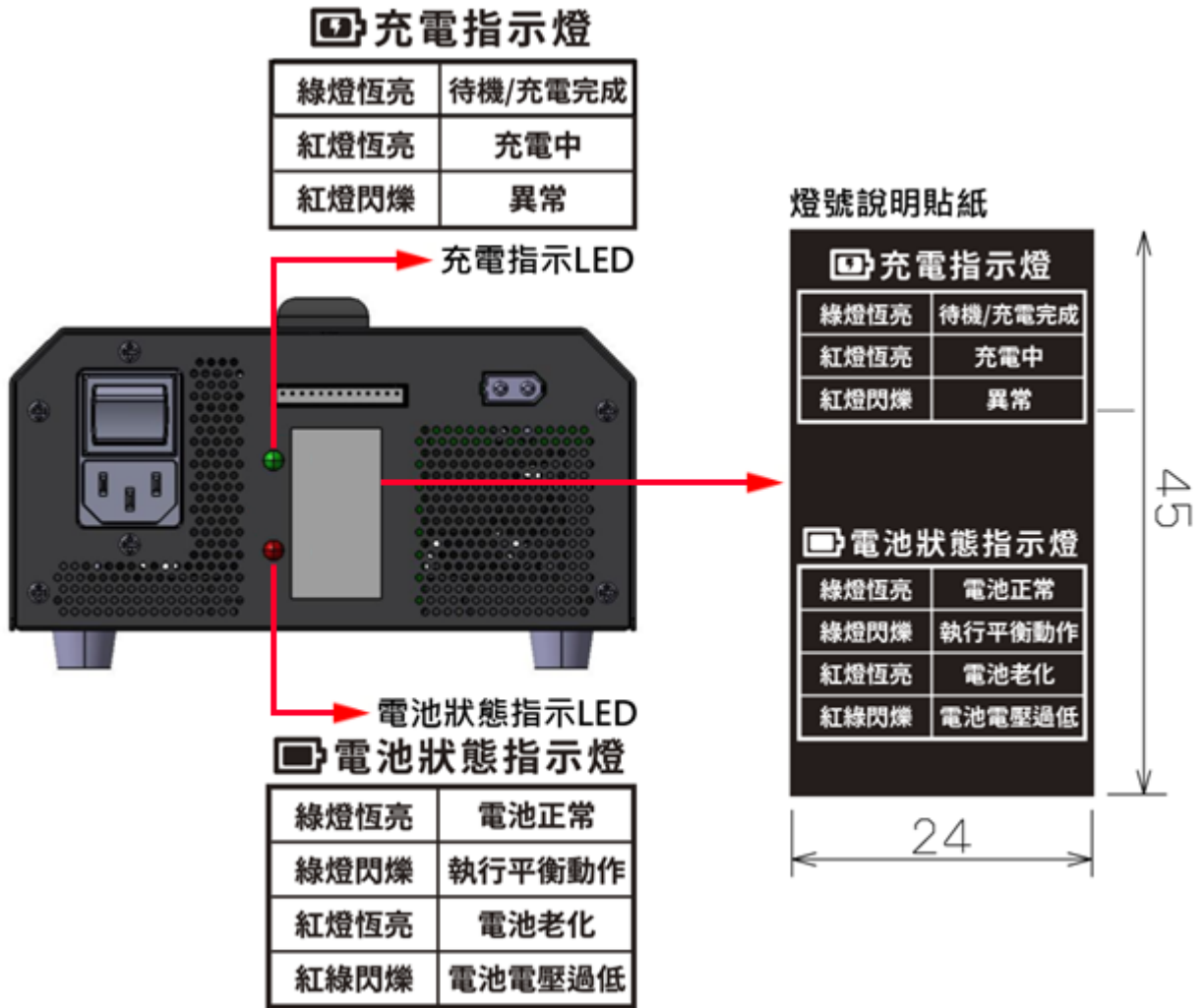
CASE

Dimension: 310x165x80mm (不含手把與腳墊)

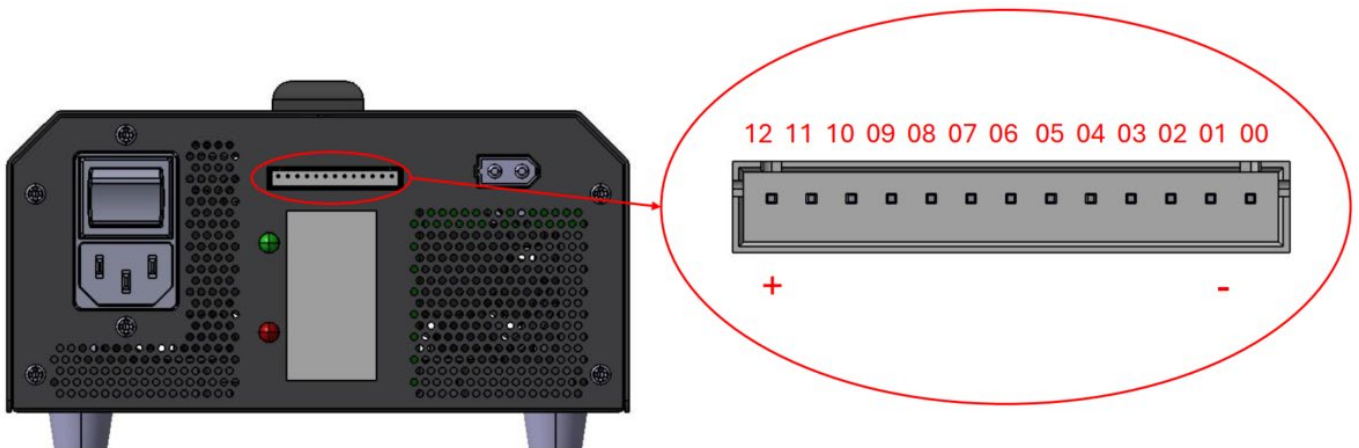
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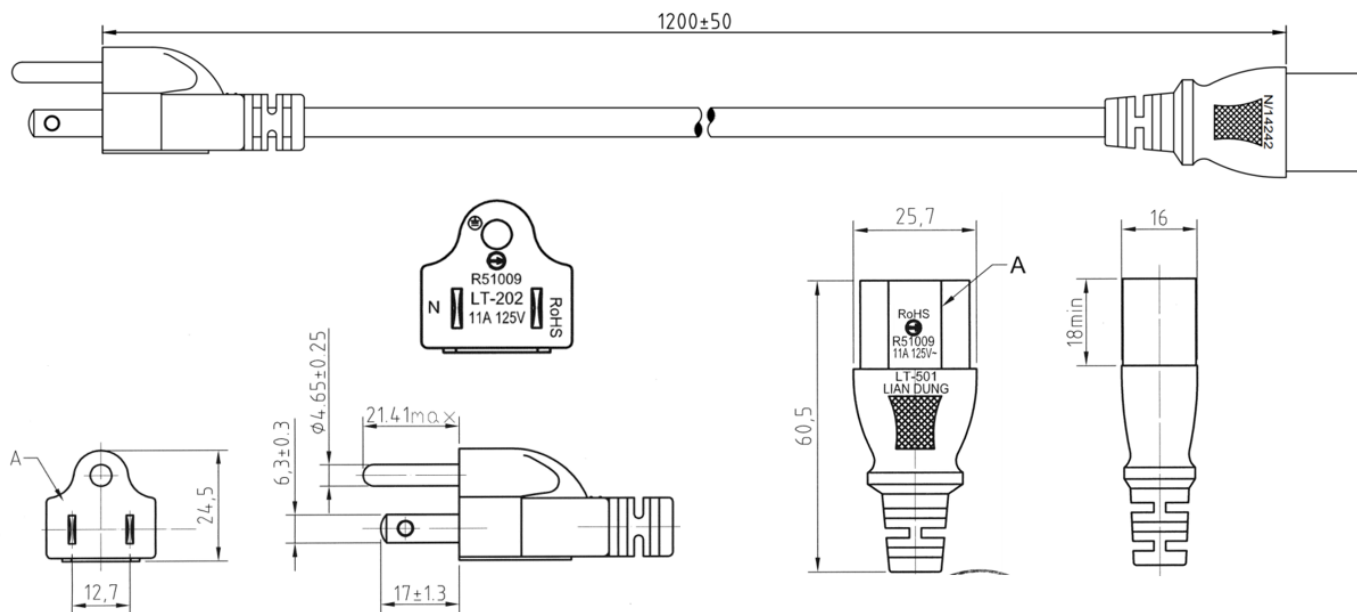
燈號位置說明



平衡線連接器 PIN 腳位定義



AC CORD



台規+品字尾: LT-202 + LT-501(11A/125V), VCTF 1.25mm²/3C 黑色(1.2M)