

太陽能試驗機
Climatic Chamber for PV Modules



Advanced Technology
科技創新技術

兩岸第一家通過國際認證

KSON - the first climatic chamber approved by international certification body in cross-Straits.

太陽能電池
溫濕度循環量測系統
Measurement System for PV Modules

- 同一套系統適用於晶圓、薄膜太陽能電池
- 可執行溫度循環、濕冷凍的動態量測試驗
- 符合 IEC61215、IEC61646、IEC62108、UL1703、IEC61730等試驗要求
- 國家級認證實驗室、晶圓薄膜太陽能電池廠商採用

Summary:

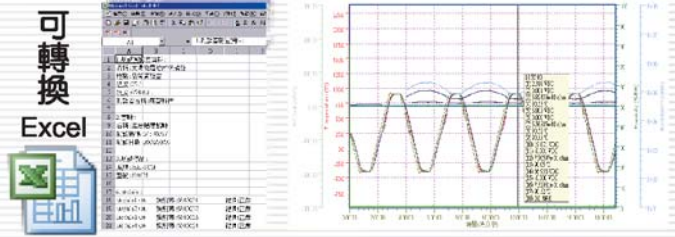
- One-stop system suitable for both crystalline silicon and thin-film PV modules
- Capable to perform dynamic measurement for thermal cycling and humidity-freeze tests
- Meets IEC61215, IEC61646, IEC62108, UL1703 and IEC61730 test requirements
- Adopted by state-level certified laboratories and PV modules / solar panel companies



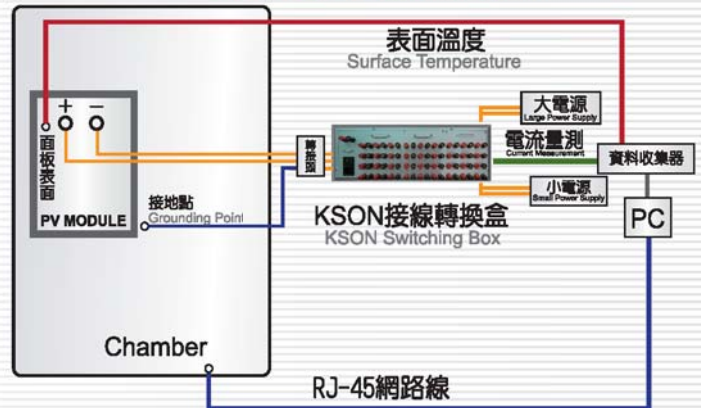
太陽能電池規範 Test Standards	IEC61646	IEC61215	UL1703
太陽能電池類型 Type of PV Module	薄膜太陽能 Thin-film	晶圓太陽能 Crystalline silicon	晶圓及薄膜太陽能 Flat-plate (Crystalline silicon & Thin-film)
監測模組內部電路連續性 Monitoring the continuity of the internal circuit	◎ ✘	◎ ✘	◎ ✘
監測邊框或支撐架之間絕緣完整性 Monitoring the integrity of the insulation between the terminals and the frame or supporting structure	◎ ✘	◎ ✘	◎ ✘
與溫度搭配施加模組STC最大功率電流 Applying a current equal to the STC peak power current		◎ (above 25°C during 200 cycle)	
紀錄測試過程模組溫度 Recording the module temperature throughout the test	◎ ✘	◎ ✘	◎ ✘

備註：熱循環Thermal cycling ◎ 濕冷凍Humidity-freeze ✘

量測系統顯示畫面



▲ 量測系統畫面 ▲
Display Picture of Measurement System



▲ 系統接線示意圖 ▲
System Wiring Diagram

雙向安全機制保護 Two-way Security Mechanism Protection

電源供應器

- RS-232
- 太陽能面板1 (Solar Panel1)
- 太陽能面板2 (Solar Panel2)
- 太陽能面板3 (Solar Panel3)
- 太陽能面板4 (Solar Panel4)
- 太陽能面板5 (Solar Panel5)
- 太陽能面板6 (Solar Panel6)

※條件(Condition):

1. 停機或故障 (Chamber shuts down or breaks down)
2. 溫度超過100°C (Temperature exceeds 100°C)
3. 通信中斷 (Communication is interrupted)

▲ Power Supply 安全機制開關 ▲



Key Value 核心價值

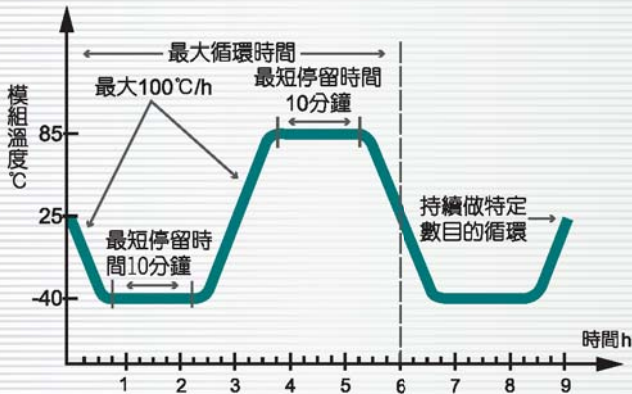
符合國際規範

IEC 61215、IEC 61646、IEC 62108、UL1703、GB19064、GB18911

■ IEC61215、IEC61646、GB19064

溫度循環試驗規範摘要 (Thermal Cycling Test)

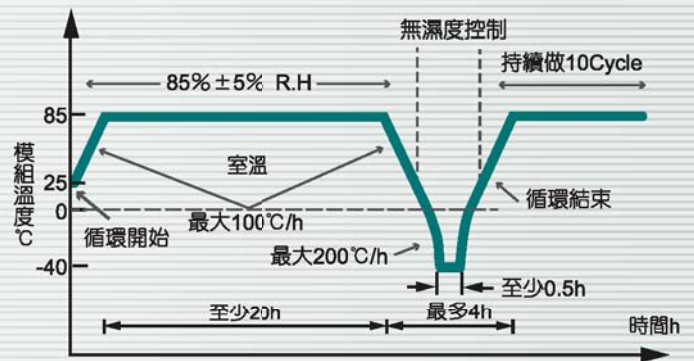
$-40^{\circ}\text{C} \pm 2^{\circ}\text{C} (10\text{min}) \leftrightarrow 85^{\circ}\text{C} \pm 2^{\circ}\text{C} (10\text{min})$



■ IEC62108、GB19064濕冷凍試驗規範摘要

IEC62108、GB19064 Humidity-freezing cycle test

$85^{\circ}\text{C} \pm 2^{\circ}\text{C} / 85\% \text{R.H} \pm 5\% \text{R.H} (>20\text{h}) \leftrightarrow -40^{\circ}\text{C}$

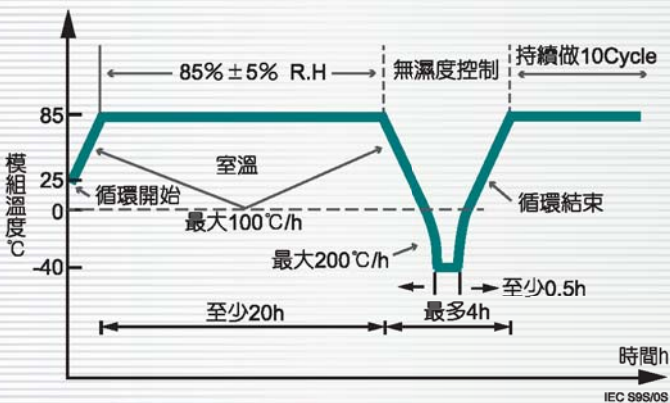


■ IEC61215、IEC61646、GB18911濕冷凍試驗規範摘要

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(-40°C 駐留 $>0.5\text{h}$ 含升降溫時間最多 4 小時)

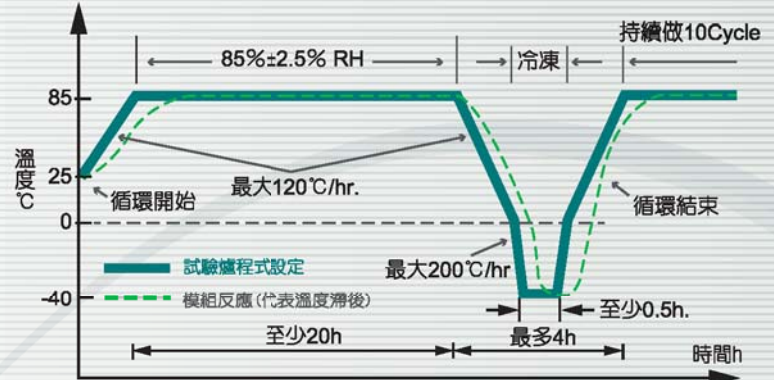


■ UL1703濕冷凍試驗規範摘要

UL1703 Humidity-freezing cycle test

$85^{\circ}\text{C} \pm 2^{\circ}\text{C} / 85\% \pm 5\% (>20\text{h}) \leftrightarrow -40^{\circ}\text{C}$

(-40°C 駐留 $>0.5\text{h}$ 含升降溫時間最多 4 小時)

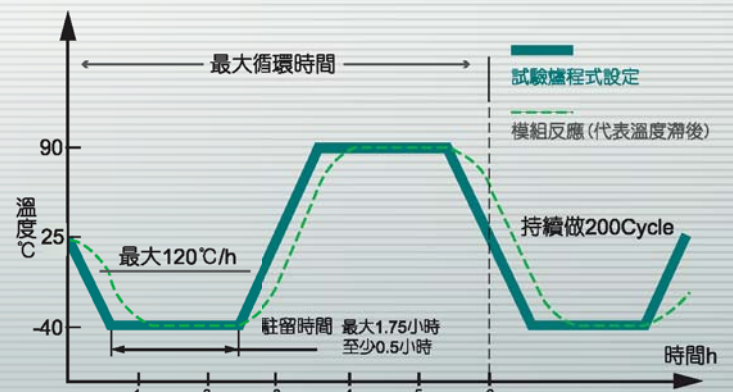
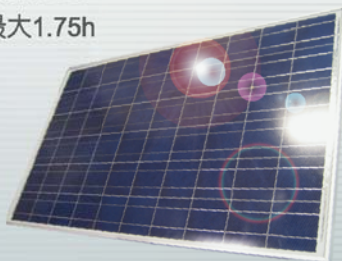


■ UL1703

溫度循環試驗規範摘要 (Thermal Cycling Test)

$-40^{\circ}\text{C} \leftrightarrow 90^{\circ}\text{C}$ 、溫變率小於 $120^{\circ}\text{C}/\text{h}$

駐留時間：最小 0.5h 、最大 1.75h



Convenience 彈性安全

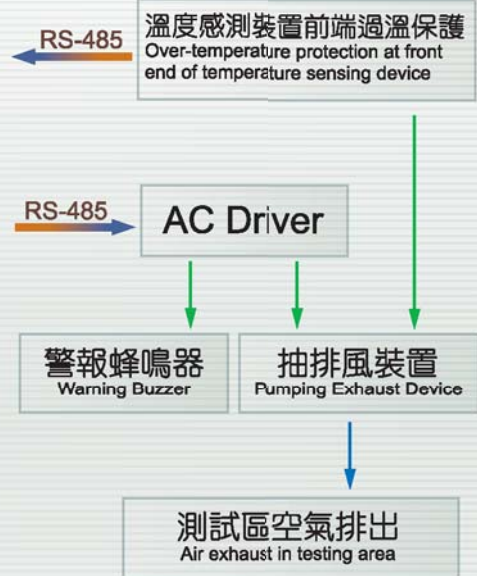
健康新主張

- 實驗結束測試區空氣自動與手動排出裝置
Automatic & Manual air exhaust device in testing area at the end of the experiment



終極安全保護

- 停電跳機時緊急抽排風保護待測品安全
Emergency pumping exhaust at blackout shutdown to protect articles to be tested



彈性治具設計

- 符合多種尺寸太陽能模組(Solar module in a variety of sizes)

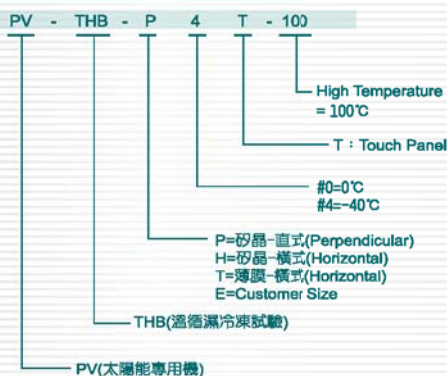


規格列表

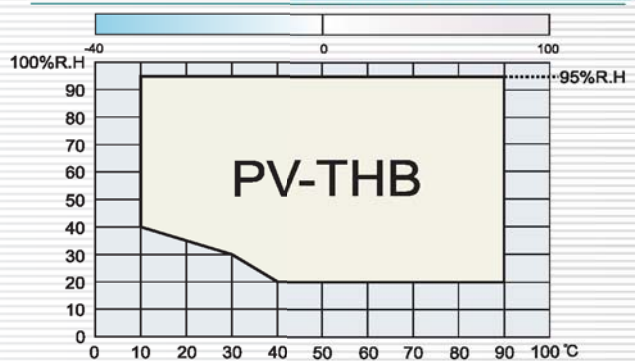
規格 (Specification)	PV-THB-P0T	PV-THB-P4T	PV-THB-H0T	PV-THB-H4T	PV-THB-T0T	PV-THB-T4T
內箱尺寸 Inside Dimensions(W.D.H)cm	120x170x225		120x225x150		110x175x160	
外箱尺寸 Outside Dimensions(W.D.H)cm	177x279x267	192x324x267	177x337x192	192x405x192	167x287x202	182x347x202
待測品尺寸 Specimen Dimension(W.H.D.)cm	200x110x5(6 pcs)				140x110x5(8 pcs)	
待測品擺設方式	直式(Stand)		臥式 (Rear Horizontal Circulating Air Fans)			
出風方式 Airstream	後吹式					
內容積(Inside Capacity)/公升(L)	4590L		4050L		3080L	
溫度範圍 Temperature Range	0°C~100°C	-40°C~100°C	0°C~100°C	-40°C~100°C	0°C~100°C	-40°C~100°C
濕度範圍 Humidity Range	20%~95%					
升溫速率 Heating Rate	20°C~100°C 50min(空載)	-40°C~90°C/80min (有載下325kg 倉台車85kg)	20°C~100°C 50min(空載)	-40°C~90°C/80min (有載下220kg 倉台車70kg)	20°C~100°C 50min(空載)	-40°C~90°C/80min (有載下270kg 倉台車70kg)
降溫速率 Cooling Rate	20°C~0°C 60min(空載)	90°C~40°C/110min (有載下325kg 倉台車85kg)	20°C~0°C 60min(空載)	90°C~40°C/110min (有載下220kg 倉台車70kg)	20°C~0°C 60min(空載)	90°C~40°C/110min (有載下270kg 倉台車70kg)
溫度分佈偏差 Temperature Variation °C	±1.5°C					
濕度分佈偏差 Humidity Variation %	±4%					
溫度穩定度 Temperature Stability	±0.5°C					
濕度穩定度 Humidity Stability	±2%					
溫度解析度 Temperature Resolution	0.01°C					
濕度解析度 Humidity Resolution %RH	0.1%					
循環系統 Circulation System	機械式的對流系統(Mechanical Convection System)					
冷凍系統 Cooling System	二元式/一元式 (Caseade Refrigeration System/Single-Stage)					
冷卻方式 Cooling Method	水冷 (Water Cooling)					
加熱系統 Heating System	平衡溫度(Balance Temperature) P.I.D.+P.W.M.+S.S.R					
加濕系統 Humidification System	平衡濕度(Balance Humidity) P.I.D.+P.W.M.+S.S.R					
加濕給水系統 Humidification Water Supply	自動水位控制(Automatic Water Regulating)					
控制器 Controller	IPC Baced Touch Panel					
電源 Power Source	AC 220 V / 3 φ : AC 380V / 3 φ					
水質 Water Quality	蒸餾水(Distilled Water Only)					
環境溫度 Ambient Temperature	+5°C~+30°C					
擴充設備 Optional Accessories	量測系統、時序插座、e化管理系統 (Measurement System)(Power Supply Socket)(Communication Interface)					

※以上規格，請以實體報價為主
For Above Accessories, Their Actual Specifications May Vary

Model Code



溫濕度可控制能力範圍表 Temperature & Humidity Range



www.kson.com.tw

慶聲科技股份有限公司

台北 新北市新莊區新樹路387巷2號

TEL : (02)2208-4002

FAX : (02)2208-3491

E-mail : kson@ms13.hinet.net

新竹 TEL : (03)555-4970

E-mail : kson@ms13.hinet.net

高雄 TEL : (07)359-4445

E-mail : kson@ms13.hinet.net

營業項目-

恆溫恆濕機(標準型/超低濕實驗型/太陽能專用型/LED專用型/等溫型/三機一體型/安定性/步入式/桌上型)/冷熱衝擊機(氣體式三箱/二箱移動式)/鋰電池專用試驗機/熱應力複合機/應力篩選試驗機/太陽能量測系統/自然對流試驗機/高度加速壽命試驗機(HAST)/高壓加速壽命試驗機(PCT)/複合型環境試驗機/數位收集系統/高速離子遷移量測系統/e化管理系統/