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太陽能模組戶外安裝 及維運可靠精確功率 量測



PVPM1000X
PVPM1040X
PVPM1500X

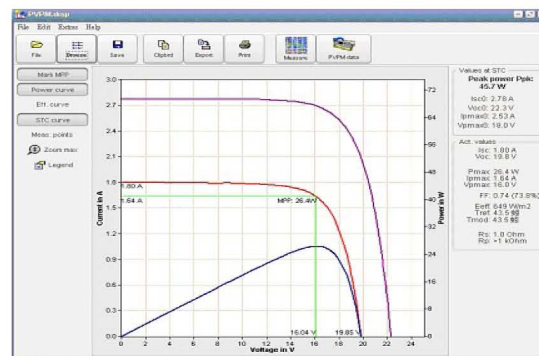
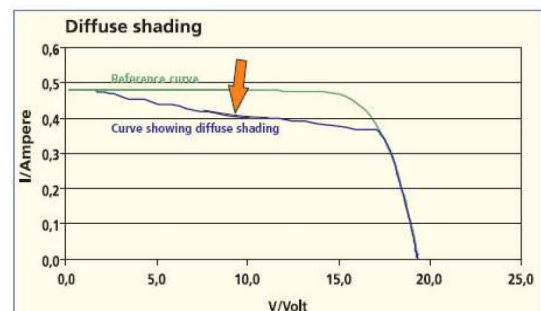
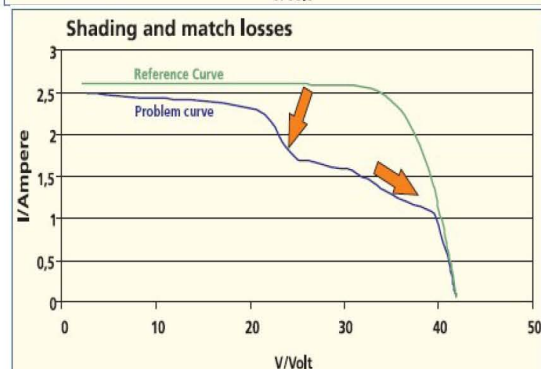
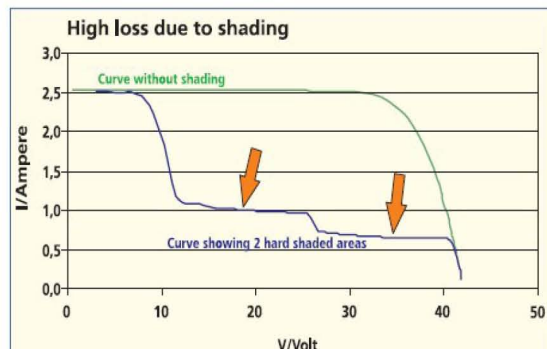
PVPM1100C



德國Dortmund應用科技大學, Dr. Wagner教授所開發量測技術, 使用 4-wire measurement 搭配相同材質之 ISET SENSOR 減少SR Mismatch, 使得太陽能模組在安裝現場可以PVPM系統準確量測 Peak Power PPK, R_s , R_p 及I-V特性曲線包括: V_{pmax} , I_{pmax} , P_{max} , V_{oc} , I_{sc} , FF, Tmod, Eeff. (精確度 $<0.08\%$ for I-V, $<5\%$ for Peak Performance, reproducement $\pm 2-3\%$, Accuracy of the a/d converter 0.08% of FSR ± 1 LSB PVPM系統完全符合STC測試條件, 自動依據 Irradiance/Temp.感測數據, 進行必要修正並以內建LCD顯示所有量測結果。PVPM系統可連線PC以軟體規劃重覆多次量測, 以平均取得更精確結果



ISET SENSOR



PVPM系統(與PC連線)
可在線長期監控

依據電站大小
多種設計提供
最高性價比之
產品規格



型號 \ 量測範圍	電壓	電流
PVPM1000X	25V / 100V / 500V / 1000V	2A / 5A / 10A / 20A
PVPM1000C	25V / 100V / 500V / 1000V	2A / 5A / 10A / 20A
PVPM1040X	25V / 100V / 500V / 1000V	2A / 5A / 10A / 40A
PVPM1040C	25V / 100V / 500V / 1000V	2A / 5A / 10A / 40A
PVPM1100C	25V / 100V / 500V / 1000V	10A / 20A / 50A / 100A
PVPM2540C	25V / 50V / 100V / 250V	2A / 5A / 10A / 40A
PVPM1500X	25V / 100V / 500V / 1500V	2A / 5A / 10A / 20A

Resolution 0.01V - 0.25V, 0.005A – 0.01A

Remark: X = 手提式 / C= 便攜式

• 本設備具有量測太陽光電模組/陣列下列參數能力(04.01.2017 13:39:54 例)

• 最大功率(maximum power)

• 最大功率所相對之電流(maximum power current)

• 最大功率所相對之電壓(maximum power voltage)

• 短路電流(short circuit current)

• 開路電壓(open circuit voltage)

• 串聯電阻(internal series resistance)

• 並聯電阻(internal parallel resistance)

• 填充因子(fill factor)

• 峰值功率(peak power):本設備針對太陽光電模組

之實測值,具備換算成STC條件下

(Irradiance:1000W/m²,spectrum:AM1.5,

Cell temperature 25度)之峰值功率之功能,

其誤差值須在+5%以內.

Measurement Results		
Module type: - (+)		Measurm.:
In series: 1 - Parallel: 1		
Values at STC:	Peak power P pk:	223.3 Wp
	Ppk max:	234.5 W
	Ppk min:	212.1 W
	I pmax0:	7.08 A
	Vpmax0:	31.5 V
	I sc0:	8.42 A
	Voc0:	38.3 V
Maximum values (actual):	P max:	140.5 W
	I pmax:	5.48 A
	Vpmax:	25.6 V
	I sc:	6.52 A
	Voc:	32.8 V
Calculated values:	Rs:	1.3 Ohm
	Losses by add. Rs:	n.a.
	Rp:	138 Ohm
	FF:	0.66
	NOCT:	55 °C
Conditions during measurement:	Cell temperature T mod:	54.3 °C
	Irradiance E eff:	774 W/m ²
	Temperature reference cell T ref:	50.9 °C



Temperature surface sensor
Pt1000 (RTD)

Temperature surface sensor PT100 for the measurement of the back surface temperature of the module under test, stainless steel housing, aluminium mounting plate, temperature range -30°C bis +105°C, accuracy according to DIN 1/3 B.

Irradiance reference sensors, calibrated

These irradiance references are available as accessory for the PVPM devices.



ISE Fraunhofer outdoor
precision reference

The Outdoor-Precision-References of the ISE Fraunhofer in Freiburg have one of the highest available accuracies on the market. These sensors are available with or without absorption filters and so usable for referencing a variety of technologies. The sensor can be provided with a RTD temperature sensor for the compensation of the cell temperature.



ISET sensor
Mono / Poly / amorphours

If required several other commercially available irradiance reference sensors may be attached to the PVPM, for example the sensors series "ISET-Sensor". These sensors are available in several cell technologies (for example mono-, polycrystalline, amorphous). The length of the lead is 10m (other size on request).



M+T Si (mony / poly / KG)

Irradiance references series M+T Si are available with a monocrystalline or polycrystalline cell and normal PV glass, but as well with filter glass (KG) which allows the use of this sensor for referencing modules made from amorphous silicon. The sensor is usually provided with a Pt1000 temperature sensor for the compensation of the cell temperature.



SOZ-03

The SOZ-03 is a calibrated irradiance reference sensor with monocrystallin cell technologie. The length of the lead is 10m (other size on request).