

no out-gassing

SolarPaq

...profiling the anti-reflection (sputtering) coating process

BUILDING ON THE BEST

The Datapaq® SolarPaq system has been designed to monitor the product temperature profile as the photovoltaic (PV) cells

pass through the plasma coating process. Working with major equipment manufacturers, a profiling system has been designed that can pass through the process chambers, measuring the cell temperatures even with the plasma activated. This feature, combined with the unique ability to be slotted straight into an un-modified cell carrier, enables profiling to be conducted without disrupting normal production.

Monitoring the silicon nitride coating process is key to optimizing it and hence, to the final efficiency of the cell. Due to the nature of the processing equipment, this process was until now, very difficult and costly to measure. The Datapaq system can pass through the entire process measuring temperatures of the cell surface, thus providing data on what is happening at all points inside the process.

A COMPLETE SOLUTION

The custom designed logger and its thermal protection are easily placed into the cell carrier. This design enables the system to occupy one of the 156 mm (6.1 in) positions,

so there is no need to modify the carrier. The system then passes through the entire process with plasma fields energized, and on exiting the process, the temperature profile information can be downloaded and analyzed. The system has been specifically designed to withstand harsh thermal and electrical environments within the plasma chamber, and can be used repeatedly for both process set-up and regular monitoring.

The VB7400 makes use of a unique reflective plate insulation technology. This guarantees there is no outgassing from the profiler system so ensuring the process runs under normal conditions.

BENEFITS

- Fits in a cell position no need to modify cell carrier
- Profiles cell temperatures with the plasma energized, for accurate reporting of process conditions during production
- Provides accurate, repeatable results for optimizing your process
- · Saves time and money setting up or adjusting the process

SOLAR INSIGHT™ SOFTWARE

This all new software has been designed specifically for use within the photovoltaic (PV) solar industry and contains many process-specific analysis displays. Wizards guide the users step-by-step to quickly obtain the data and analysis of the required results. This ensures that both experienced and novice users can obtain maximum benefit in the shortest possible time.





TECHNICAL SPECIFICATIONS

THERMAL BARRIER

VB7400

Dimensions (H x W x L)	18 mm \times 146 mm \times 146 mm (0.71 in \times 5.75 in \times 5.75 in)	
Weight	880 g (1.75 lb)	
Material	100% stainless steel construction	
	(only for use in vacuum applications)	

Thermal Duration *					
Temperature	100°C (212°F)	200°C (392°F)	300°C (572°F)	450°C (842°F)	
Duration (mins)	300+	75	40	20	

^{*} Guidelines only actual performance will depend on vacuum level.

(Securing flanges 10 mm/0.39 in wide)

Using the spacer blocks provided with the barrier, the height above and below the carrier frame can be set to suit the process chamber being profiled.

DATA LOGGER

The Datapaq Q18 logger features rugged, reliable and accurate data acquisition circuits, clear status indicators and an intelligent battery management system.

Model number	DQ1863
Number of channels	6
Sampling interval	0.05 seconds to 10 minutes
Accuracy	±0.5°C (±0.9°F)
Resolution	0.1°C (0.2°F)
Maximum internal operating temperature	85°C (185°F)
Temperature range	-200°C to 1370°C (-328°F to 2498°F)
Memory	18,000 readings per channel (6 channels active)
Data collection start	Start/stop buttons, time or temperature trigger
Battery	NiMH rechargeable
Thermocouples	Type K

RECOMMENDED THERMOCOUPLES

PA1570	300 mm (I ft) length
PA1571	600 mm (2 ft) length
PA1572	1000 mm (3.25 ft) length

Ultra fine, mineral insulated Type K thermocouple, diameter 0.5 mm (0.02 in). These thermocouples comply with BSEN 60584.2 Class 1.

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Worldwide Service

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