



Fluke Process Instruments

SolarPaq

... for profiling the contact drying process

BUILDING ON THE BEST

The Datapaq® SolarPaq is the most widely used profiling system in the solar photovoltaic (PV) manufacturing industry and is accepted as the standard in the contact firing process. We have built on this experience and are now able to offer an ultra-low height solution suitable for profiling the ovens used for contact paste drying, even where the height is restricted to 10 mm (0.39 in). This enables the end-user to set up, optimize and most importantly, regularly check the dual lane temperature uniformity of this important process.

A single PV manufacturing line will typically contain three ovens for drying the contact paste. Ensuring that all of these maintain maximum throughput and efficiency requires regular checking of the temperature profile. Incorrect drying will directly reduce process yield and the conversion efficiency of the final product. The Datapaq SolarPaq can travel through these very height restricted ovens and monitor cell temperatures at up to 4 points. This enables the process engineer to ensure the correct thermal profile is maintained across all lanes of multiple lane driers and in all driers.

A COMPLETE SOLUTION

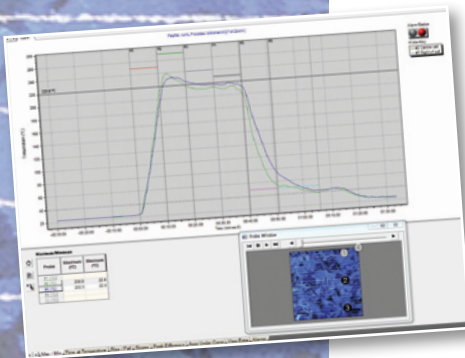
This unique system extends the comprehensive SolarPaq product range so that all thermal processes from anti-reflective coating, through paste drying, contact firing and finally, module lamination can be profiled using Datapaq systems. The Datapaq Insight software has many process-specific analysis tools that quickly present the data in such a way, that a full picture of the process is built up in seconds, saving time in process setup, optimizing and day-to-day checking.

BENEFITS

- Ensure maximum process throughput without compromising quality.
- Optimize final product efficiency through correct drying of every cell.
- Quickly plot changes in oven performance, enabling rapid problem resolution and minimum down time.

SOLAR INSIGHT™ SOFTWARE

This all new software has been designed specifically for use within the 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



DATA LOGGER

The Q18 features rugged, reliable and accurate data acquisition circuits, clear status indicators and an intelligent battery management system. The DQ1840 is housed in a rugged, machined stainless steel case. It is designed to reflect heat energy from IR heaters and any energy that is absorbed slowly heats up the high mass case that protects the electronics from the environment. The status indicators and buttons are all recessed to protect them from direct heating and minimize heat entry to the logger circuits. The logger can be used in processes of 2 to 3 minutes and up to 300°C (572°F) without the need for additional thermal protection. It is ideally suited to the needs of the drying process used in many PV manufacturing lines.

Model Number DQ1840

Number of channels	4
Sampling interval	0.05 seconds to 10 minutes
Accuracy	±0.5°C (±1°F)
Resolution	0.1°C (0.2°F)
Maximum internal operating temperature	85°C (185°F)
Temperature range	-150°C to 1370°C (-238°F to 2498°F)
Memory	55,000 readings per channel (4 channels active)
Data collection start	Start/stop buttons, time or temperature trigger
Battery	NiMH rechargeable with fast recharge
Thermocouples	Type K

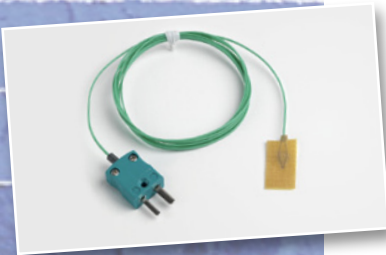
RECOMMENDED THERMOCOUPLES

The PA0061 is manufactured with a flattened foil hot junction that is fitted with a self adhesive patch. It can easily be applied to the cell and can be used time and time again.

PA0061 Adhesive patch thermocouple, length 1m (3.28 ft) PTFE. PTFE insulated cable 0 to 265°C (32°F to 509°F) Max. fast response.

These probes comply with ANSI MC96.1 special limits of error. For other cable lengths, please contact Datapaq.

Datapaq offers additional solutions for PV manufacturing, including:



I222 SolarPaq anti-reflection coating



I223 SolarPaq contact firing



I224 SolarPaq lamination

Fluke Process Instruments

EMEA

Cambridge, UK
Tel: +44 1223 652 400
sales@flukeprocessinstruments.co.uk

Americas

Derry, NH USA
Tel: +1 603 537 2680
sales@flukeprocessinstruments.com

China

Beijing, China
Tel: +86 10 6438 4691
sales@flukeprocessinstruments.com.cn

Asia East and South

India Tel: +91 22 2920 7691
Singapore Tel: +65 6799 5596
sales.asia@flukeprocessinstruments.com

Worldwide Service

Fluke Process Instruments offers services, including repair and calibration. For more information, contact your local office.

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