

Patented thermal technology enhances PV tabbing and bussing soldering results



A thermal technology that will produce and maintain a specific, self-regulated temperature with a heater that requires no calibration and responds directly to thermal loads has been applied to PV tabbing and bussing applications with measurably improved results.

Uniquely available from OK International (www.okinternational.com), the patented SmartHeat® Technology consists of a high frequency alternating current (AC) power supply and a self regulating heating element. The heater utilizes the electrical and metallurgical characteristics of two different metals; copper, which is a material with high electrical conductivity, and a magnetic material with high resistivity.

“Micro cracking of delicate solar cell substrates is a common defect that can occur during PV tabbing and bussing soldering processes,” explains Hoa Nguyen, VP of Technology at OK International. “The soldering temperature must be reduced to a minimum so that the solar cells will not be subjected to mechanical or thermal stresses from the soldering process.”

During the soldering operation, differential thermal expansion of the copper and the silicon elements can occur at temperatures greater than 300°C. This differential can result in the formation of micro-cracks that may not be detected during the manufacturing process and result in reduced field lifespan. The need for precise time and temperature control is made additionally critical by the precise intermetallic layer requirement of 1-2µm that must be created during the solder joint formation.

The OK International SmartHeat PS-900 soldering system with specially designed STV-DRH40 hoof tip geometry optimizes the power delivered to the solder joint, thus providing high performance efficiency with increased tip life. It's temperature-sensitive “T” heater series ensures low temperature soldering and thus minimizes thermally induced stresses on the surface of the solar cells.

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About OK International

OK International is a leading global supplier of products for production assembly equipment. The product range includes bench top soldering and desoldering tools, fluid dispensing systems and accessories, and fume extraction systems.

OK International is committed to understanding the process requirements of its worldwide customer base and supplies professional grade products that are innovative, reliable, price competitive and easy to use. Through global channels, OK International provides expert applications support and responsive customer service, with localization to meet regional market needs.

OK International Contact	Protean Marketing Contact
Jerry Simmons Marketing Manager OK International, Inc. 12151 Monarch St. Garden Grove, CA 92841	Helena Osborn Unit 1, Cutbush Court Danehill Lower Earley Reading, RG6 4UW UK
Office Direct: (714) 230-2366 Mobile: (714) 264-1248 E-Mail: jsimmons@okininternational.com Web: www.okininternational.com	Tel: +44 1189 759880 Email: helena.osborn@protean.co.uk www.proteanmarketing.com