

# Improving Solar Cells

## with photoluminescence imaging

test & measurement

custom electronics

engineering software

data management



defence & aerospace

consumer goods

environment

mining

ICT

energy

agriculture

biotechnology

transport & automotive

## Challenge

BT Imaging is an Australian company involved in the development and manufacture of quality control and R&D systems for the photovoltaic industry. The LIS-R1 was created to allow scientists to measure silicon properties in the lab in the pursuit of cheaper and more efficient solar cells. Additionally, the system allows cell manufacturers to improve the quality and yield of their production processes.

CPE designed and developed the software and user interface for the LIS-R1. Photoluminescence imaging is used to detect the quality of the semiconductor material in bare silicon blocks, wafers and solar cells at any stage in the photovoltaic manufacturing process.

Most importantly, the software had to be easy to use, and uphold a professional image for the company.

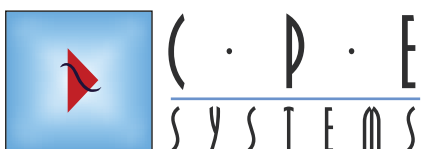
## Solution

When CPE joined forces with BT Imaging, the LIS-R1 was only a concept design. CPE devised a flexible software solution to assist in the product development cycle. LabVIEW was chosen to develop the solution due to its powerful graphical capabilities and quick implementation time.

This software controls the system pneumatics, laser and camera. It also measures various cell parameters such as I-V curves, photoluminescence and electroluminescence, which are used to determine the quality and lifetime characteristics of cells.

The LIS-R1 prototype system was successfully demonstrated at the 23rd European Photovoltaic Solar Energy Exhibition in Valencia, and several beta systems have been sold to companies around the world. CPE Systems will provide on-going support to BT Imaging as the product continues to evolve.

For more CPE user solutions, visit our website.



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