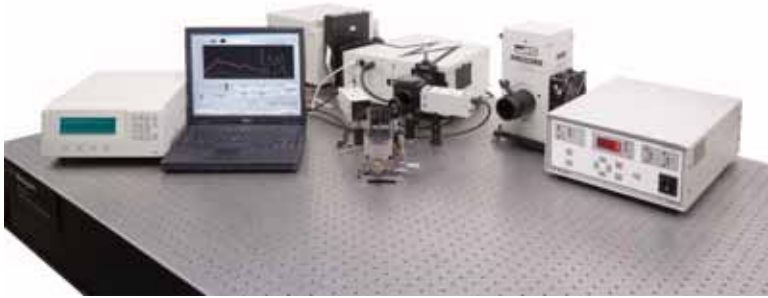


# Oriel QE/IPCE Measurement Kit



## QE system

Oriel's new QE/IPCE measurement kit help the researchers who need to set up their Quantum efficiency (QE) and Incident Photon to Charge Carrier Efficiency (IPCE) measurement experiment for a solar cell, a detector, or any other photon-to-charge converting device. We preselected the most suitable components for your measurement needs. All components are from Newport, who is an industry leader in light sources and spectroscopy products. Please check our web site for further details on this exciting new product.

## What are QE and IPCE?

Quantum efficiency (QE) and Incident Photon to Charge Carrier Efficiency (IPCE) indicates the ratio of the number of photons incident on a solar cell to the number of charge carriers generated. Quantum efficiency is a measure to give an external efficiency, while IPCE considers the internal efficiency; that is, the photons reflected back from the surface of the cell are not considered.

The QE/IPCE measurements are critical—especially during the materials research and cell design stage—because it is of great importance for a device to have an optimal spectral response at the point at which the spectral component of the sunlight is abundant. The system is built by an industry leader in light sources and spectroscopy, so you can rely on our expertise to ensure accuracy of the measurement.

## How to Measure QE and IPCE?

The key in accurately measuring the QE/IPCE is to exactly know how much monochromatic (that is, light with a narrow band) light is incident on the device under test and how much current is generated. We provide the most important components, which are the most common building blocks of a QE/IPCE system that will allow you to quickly set up the experiment.

## Components

Newport's QE/IPCE kit offers instruments and components necessary to measure both the internal and the external QE measurements.

- **Light sources** – The kit includes a 150 W Apex light source and a 300 W Xe Arc Research Source. The first light source is coupled to a monochromator to create the scanning light, and the second source is to provide a white light bias, typically employed in solar cell QE measurements.

- Preselected components for the QE/IPCE measurements
- Simple, yet flexible software that measures QE with a simple configuration setup
- All components from Newport which makes support easy

- **MS 260i Monochromator** – This high quality monochromator is ideally suited with the select light sources and gives you the best throughput. The monochromator is controlled via USB connection.
- **Optics and optomechanical components** – Basic focusing optics and optomechanical components are provided for your convenience. Depending on the complexity of the setup you desire, you must choose additional components. We suggest you create your own combination of optics to generate the desired spot size for the incident beam on the cell under test.
- **Merlin lock-in amplifiers and detectors** – We provide the Merlin lock-in amplifier for the sensitive optical power and current measurements. The Merlin lock-in amplifier comes with a chopper controller, which is also included in the kit.
- **Other components include a motorized filter wheel for the order sorting filters and an optical chopper.**

## Software

The QE software is constructed on top of the familiar Tracq Basic software. The software controls all the components, including the monochromator and the order sorting filter wheel, the Merlin lock-in amplifier and the chopper

## Specifications

We do not specify system level specifications. Please refer to individual product datasheets or web sites for the components' specifications.

## Ordering Information

Please check back on our web page with the final configurations.

*Note: Please check our product web pages for more technical information at [www.newport.com](http://www.newport.com).*