

IQE 200B Quantum Efficiency Measurement Solution



- Complete, turn-key PV efficiency measurement solution
- Robust, compact design: small footprint of 0.85 x 0.39 m (33.3 x 15.4 in.) to minimize lab space
- Simultaneous IQE, EQE, and spectral response measurements
- Integrated beam chopper with virtual digital lock-in amplifier capable of 4 Hz for high signal-to-noise
- Achromatic optics: maintains spot size throughout the entire spectral range
- Wavelength range: 350 nm to 1100 nm
- User-friendly, icon based software interface for simple calibration and IQE measurements
- Sturdy 3-axis (Z, tip, tilt) optical mounting for precise alignment and stability

EXCELLENCE IN TECHNOLOGY

The IQE 200B leverages Newport's expertise in optical design, spectroscopy, precision motion control, and electronics technologies. These proficiencies have been focused into a complete, sophisticated measurement system for Quantum Efficiency (EQE and IQE).

The IQE 200B empowers researchers to measure Internal Quantum Efficiency (IQE) and quantify External Quantum Efficiency (EQE), also known as Incident Photon to Charge Carrier Efficiency (IPCE), for any photovoltaic device. Employing industry leading, durable components for optical performance, the IQE 200B is preconfigured, assembled, and calibrated at the factory. The product is a turn-key solution which includes all necessary components with integrated light source, monochromator, detectors, electronics, software, and even the computer.

The IQE 200B incorporates a patented detector geometry using a beam splitter, allowing for simultaneous measurement of EQE and the reflective losses to quantify IQE. Unique to this model is an integrated vacuum chuck with thermistor. This model also includes a 4-wire sense which broadens the capabilities to include a large range of sample sizes and efficiencies.

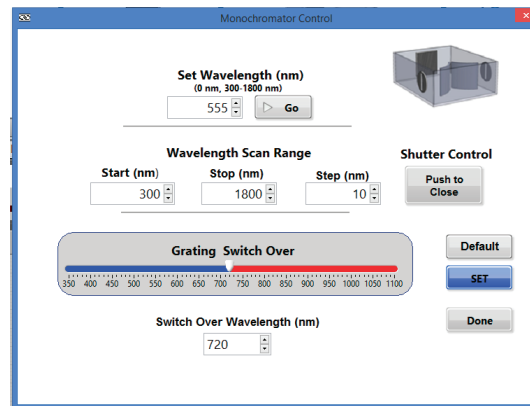
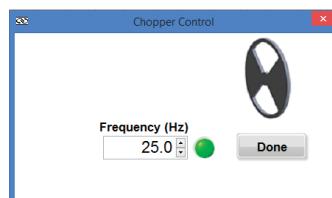
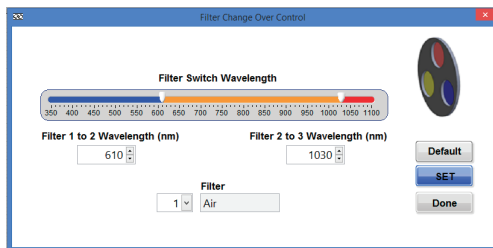
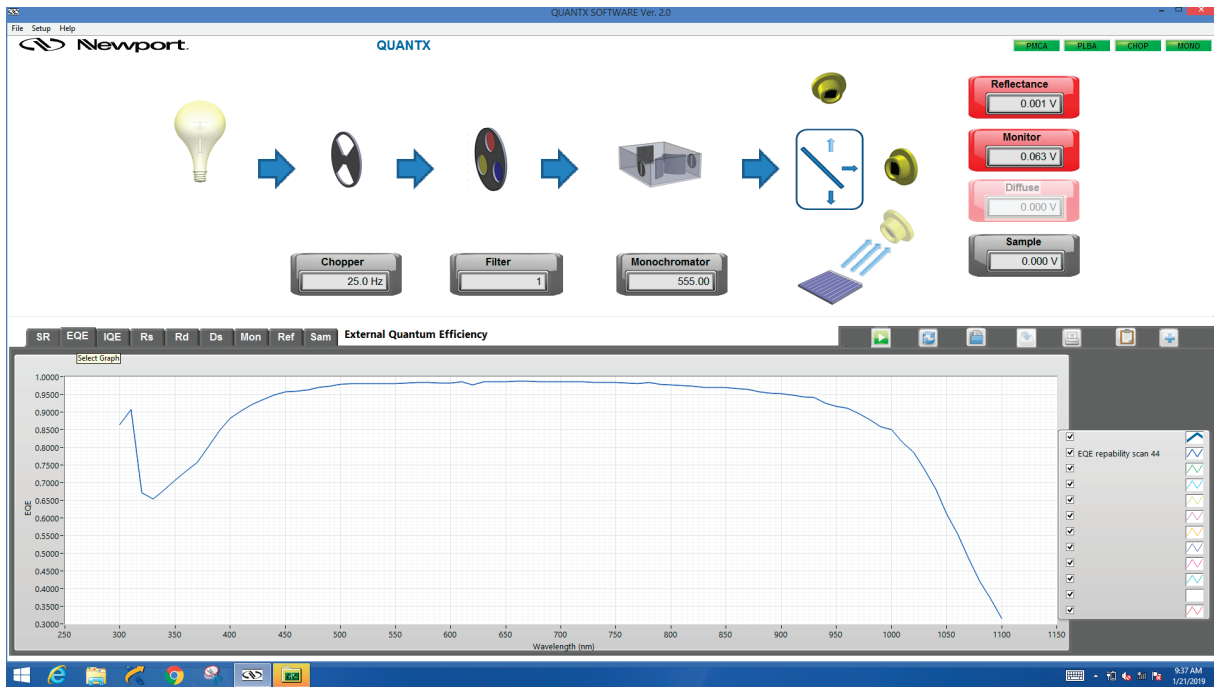
A variety of accessory models are available to provide positive sample positioning, temperature control, light biasing, and electrical probing capabilities.

ORIEL
INSTRUMENTS
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INTUITIVE SOFTWARE

The acquisition and controls software for the IQE 200B is pre-installed on a laptop computer which is included with the measurement system. The software uses an intuitive, icon based graphical interface to provide instrument controls, configuration, and data acquisition.

The software seamlessly controls all of the system components. EQE and IQE curves are calculated and plotted as a function of wavelength in a single scan without the need to reposition the detectors or sample, optimizing measurement accuracy and repeatability.



PERFORMANCE SPECIFICATIONS

Light Source	100W Xenon lamp
Spot Size	0.76 mm x 1.0 mm rectangular at focus
Working Distance	85 mm
Wavelength Range	350 - 1100 nm (300 - 1100 nm with moderated precision)
Spectral Bandwidth of Monochromator Output	5 nm minimum
Wavelength Repeatability	±0.5 nm
Monochromator Filters	Automated, 5-position filter wheel
Signal Acquisition	Chopper with virtual lock-in amplifier
Chopper Frequency	4 Hz minimum
QE Calibration Test Cell	Included
Reflectance Calibration Standards	Included
Computer	Included; Dell Latitude (recent model)

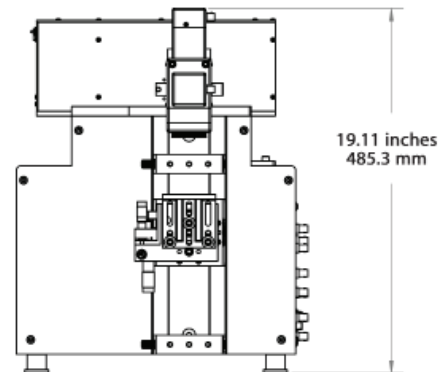
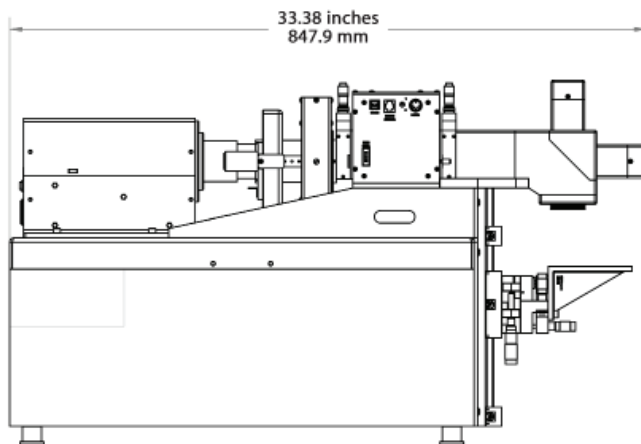
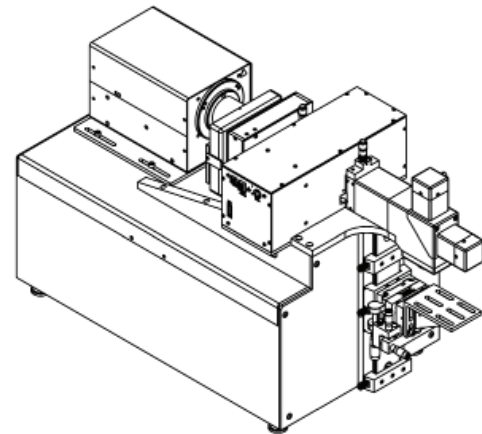
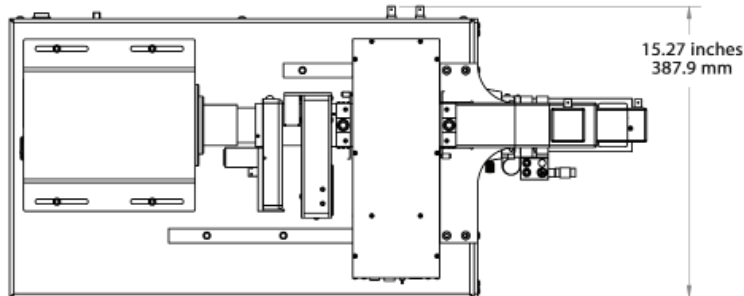
ELECTRICAL / MECHANICAL SPECIFICATIONS

Input Voltage	100 - 240 VAC
Input Frequency	48 - 66 Hz
Power Consumption	400 W
Power Supply Operating Mode	Constant current or constant power
Ambient Operation Temperature	23 ± 5 °C (72 ± 8 °F) lab environment
Weight	70 lbs. (31.8 kg.)
Dimensions (m) (W x D x H)	0.85 x 0.39 x 0.49 (33.3 x 15.4 x 19.1 in)

AVAILABLE ACCESSORIES

Temperature Controlled Vacuum Chuck	IQE-200B-TC-VAC
Electrical Contact Probe Kit - Magnetic	PVIV-PROBE-KIT
Light Biasing Kit - Delivers white or filtered sample biasing illumination	IQE-LIGHT-BIAS
Vacuum Pump	PVIV-VAC-PUMP; PVIV-VAC-PUMP-220
Temperature Controlled Circulating Water Bath	PVIV-CHILLER
Replacement Lamp	6252

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Note that the actual monochromator used in this product is not accurately reflected in the diagrams above, but the overall system dimensions remain unchanged.



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