



## **The Model 430/440 Fiber Optic CCD Array UV-Vis Spectrophotometers**

***A technologically advanced instrument that provides unprecedented performance and flexibility.***

**S.I. Photonics** is proud to introduce the Model 430/440 UV-Vis Spectrophotometers. Both the Model 430 and 440 Spectrophotometers are precision laboratory grade instruments that combine fiber optic sampling technology with a high sensitivity charge coupled device (CCD) array detector. This combination provides both unprecedented performance and flexibility never before available in a single instrument.

### **High Sensitivity CCD**

The CCD array detector used in all 400 Series instruments has approximately 100X lower readout noise than *photodiode* array detectors used in other multi-channel UV-Vis spectrophotometers. In addition, the new CCD used in the 430/440 models has 15X higher sensitivity than the detectors used in previous 400 Series models. This higher sensitivity coupled with low noise and inherently low dark current means that the 430/440 models are

especially well suited for *spectrophotometry* where low light levels are encountered, such as *diffuse reflection* measurements and *colorimetry*. In fact, the spectrograph of the Model 430/440 is sufficiently efficient and sensitive that the instrument is well suited for most *spectroradiometry* and many luminescence applications, including *spectrofluorimetry*.

### **Faster**

The use of array detector technology has always given the 400 Series instruments the capability of acquiring a complete spectrum in the time it takes a scanning instrument to acquire a single data point. This has been an important advantage for detecting the presence of unexpected spectral features, and for increasing the accuracy of measurements by using reference and calibration wavelengths. Now, the acquisition time of the 430/440 models has been increased by approximately 10X over previous models, making

it possible to acquire 5 full range measurements every second.

### **Wide Wavelength Range with Narrow Bandwidth**

The wavelength range of the Model 430 has been expanded from previous models to span 350 - 980 nm, and the Model 440 to 190-980 nm. The spectral bandwidth over this entire range is <1.1nm.

### **Greater Flexibility**

In order to expand the capabilities of the 400 Series instruments, features have been added to permit powering various external light sources and shutters. Accessories such as a remote *integrating sphere* with integral tungsten source plug directly into the front of the instrument, eliminating the need for separate power supplies.

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The use of external shutters permits the automatic acquisition of dark signal measurements necessary for accurate *spectroradiometry*.

**More Intelligence**

The Model 430/440 instruments add more electronic intelligence to monitor lamp condition

and run time, record spectrograph calibration information, and report the exact hardware configuration to the host computer. These features are especially useful for applications where the instruments are used in the same laboratory on the same host computer, and in situations where

the deuterium lamp is operated continuously for long periods.

## Model 430 and 440 Specifications

**Performance**

**Model 430**

**Model 440**

Wavelength Range

350 nm – 980 nm

190 nm – 980 nm

Spectral Bandwidth

<1.1 nm

<1.1 nm

Wavelength Accuracy

± 1.0 nm

± 1.0 nm

Photometric Range

0.002 – 3.20 AU

0.002 – 3.20 AU

Photometric Accuracy

0.005 AU

0.005 AU

Baseline Stability

<0.005 AU/hour

<0.005 AU/hour

Stray Light

<0.02%

<0.02%

**General**

Size

9"x13"x5.5"

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Weight

12 pounds

15 pounds

Power

110/220 VAC, 0.3A

110/220 VAC, 0.8A