

PHOTO RESEARCH[®], INC.

PR-730 / PR-735 SpectraScan[®]



Introducing the PR-730/735 SpectraScan Spectroradiometers

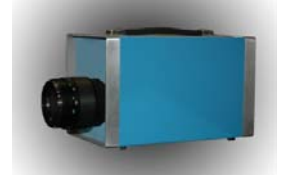
The Best in a history of excellence

The SpectraScan® Story

Photo Research has been making light and color measurement instruments since 1941.

In 1982, PHOTO RESEARCH pioneered fast spectral measurements by introducing the PR-701. The measurement speed improvement over conventional step-and-repeat spectroradiometers was due to parallel acquisition of the emitted spectrum in comparison to the step-and-repeat approach of all other spectroradiometers.

Soon after, the PR-703/713 optical head was introduced utilizing Pritchard optics for radiance / luminance measurements. Following the PR-703/713 was the PR-704/714 and then the PR-705/715.



PR-703/713



PR-705/715

We have taken our decades of experience and built it into the ultimate spectral measurement instrument - **the cooled detector PR-730/735 SpectraScan Spectroradiometers**. We've made them more sensitive, with virtually no polarization error or stray light, given them more apertures, put in twice as many detectors, added USB, RS232 and Bluetooth wireless interfaces, a full-color touch screen display and SD card measurement storage. If portability is required, we have an integrated Li-ion rechargeable battery option.

The PR-730 uses 512 detectors to sample the emitted spectrum from 380 to 780 nm yielding a resolution of 0.781 nm / pixel. Data is reported every 1 nm. The spectral range of the PR-735 is 380 to 1080 nm for a resolution of 1.348 nm / pixel and reported in 2 nm increments. Ease of navigation through menus, and vivid information screens including a full color spectrum, is supplied by the high resolution color touch screen display. Up to 8 measuring apertures can be supplied on the instrument providing unequaled spot size / sensitivity flexibility. The capability to synchronize measurements (AutoSync®) to the frequency of the source (e.g. 70Hz display) means repeatable results. An external trigger circuit lets you make precise measurements of flashing sources such as xenon strobes. The PR-730 can measure as low as 0.0001 (0.00005 for the PR-735) footlamberts (0.0003 or 0.00015 cd/m^2). Accurate measurements of polarized sources like LCD's is guaranteed by the extremely low polarization characteristics (< 0.2%). The PR-730 has variable bandwidth capability - select between 2, 5 and 8 nm spectral bandwidths to insure the optimum conditions for virtually any sample.



PR-730/735

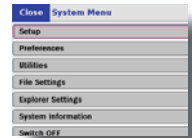
The PR-730/735 features a series of speed-up modes to help reduce measurement times - choose from Fast, 2X Fast, 4X Fast, 8X Fast and 16X Fast for measurement time reductions up to 80 times faster than the standard time.

If it is necessary to correlate two spectroradiometers from different manufacturers, or from another Photo Research spectroradiometer, the PR-730/735 can upload spectral measurement files as text files, then create spectral correction without affecting the factory calibration.

Thousands of SpectraScan instruments are currently being used world-wide in such diverse markets as automotive and aerospace displays, digital cinema, post-production, lamp standards metrology, phosphor research, tooth enamel color analysis and military displays to name but a few.

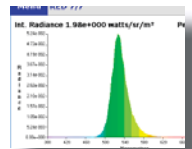
Features and Benefits

The **high-resolution, full color touch screen display** provides both an easy means of navigating through instrument set-up menus and viewing measured results, including a full-color Spectral Power Distribution (SPD) graph of the measured sample.



A wide selection of **interfacing options**, USB, RS232 and Bluetooth wireless, adds both convenience and ease when communicating with and controlling the PR-730/735. With the Bluetooth option, the instrument will communicate for up to 100 m (328 ft.) away from the base - ideal for situations where cabling is not possible.

The PR-730/735 introduces a new feature to the SpectraScan line - **variable spectral bandwidth**. One of 3 bandwidth settings (2, 5 or 8 nm) can be selected regardless of the measuring aperture being used. This lets the user change the bandwidth without changing apertures - or instruments.



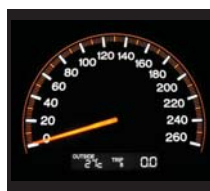
The PR-730 / 735 provides unsurpassed flexibility with the world's largest selection of **optical accessories**. It is the only instrument in it's class that can measure radiance/luminance, irradiance/illuminance, radiant flux/lumens and radiant intensity/candelas simply by changing accessories.

Remote Mode Software makes it possible to control the PR-730/735 from a custom application as easy as sending and receiving text characters over any of the available interfaces. **SpectraWin®** is a full Windows based executable that makes measurements, graphically displays results and has powerful data manipulation capabilities. An **RGB Display Cal Module** can be added to SpectraWin - it provides an interactive capability that helps automate the process of calibrating displays or digital projectors. **User Self Calibration Software** is available if you wish to calibrate your instrument in-house. It can be a great time and money saver especially when several instruments are involved.



A p p l i c a t i o n s

Aerospace - Aerospace displays, regardless of the model, present unique challenges in that required capabilities range from very low (0.1 fl) to very high (10,000 fc) photometric levels of small areas. The PR-730/735 meets these challenges by providing multiple apertures, variable bandwidth and excellent sensitivity



Automotive - SpectraScans have been used in the automotive industry world wide since their inception. Auto makers and their suppliers favor them because unlike other models, they are able to meet requirements very similar to aerospace applications - low level measurements of small areas. The PR-730/735 enhances these capabilities by offering small spot size capabilities with better sensitivity characteristics than its predecessors.

Displays / HDTV's - Photo Research SpectraScans have been providing solutions to the computer display and TV markets for decades. The PR-730/735 now makes it possible to easily address one of the toughest tasks, spectral contrast measurements, without having to rely on a second instrument.



Components - The PR-730/735 is not just a luminance meter. It's wide range of accessories can address virtually any light measurement application. For example, the LR-127 LED Analyzer is designed to measure discrete LED's for conformity to the CIE 127 Technical Report - Measurement of LED's.

Wavelength Range	PR-730 - 380 - 780 nm PR-735 - 380 - 1080 nm
Detectors	512 Cooled Detectors
Spectral Bandwidth ³	Opt. 1 - 3, 5 or 8 nm (PR-730) 5, 9 or 14 nm (PR-735) Opt. 2 - Switchable - 2, 4 and 8 nm (PR-730) 4, 8 and 14 nm (PR-735)
Wavelength Accuracy	PR-730 - < 0.4 nm PR-735 - < 0.8 nm
Spectral Resolution	PR-730 - 1 nm, PR-735 - 2 nm
Digital Resolution	16 Bits
Available Measuring Apertures (Select up to 8 per instrument)	2°, 1°, 1/2°, 1/4°, 1/8°, 0.2°, 0.1°, 0.1° x 1° (Hor. Slit), 0.1° x 2° (Ver. Slit), 0.5° x 1.5° (Hor. Slit)
Standard Lens	MS-75 - 75 mm
Luminance Sensitivity for Illum. A (2856K) ^{1 2}	0.0001 fL (0.0003 cd/m ²) with 2° aperture
Luminance Accuracy ^{1 2}	±2% against NIST traceable Illum. A (2856K) Lum. Std. at 0.003 fL (0.009 cd/m ²) with 2° aperture
Luminance Repeatability ^{1 2}	≤1% at 0.0031 fL (0.009 cd/m ²) with 2° aperture against NIST traceable Lum. Std. @ 2856K (Illum. A)
Color Accuracy ^{1 2}	±0.0015 for CIE 1931 x, y for Illum. A (2856K) at 0.003 fL (0.009 cd/m ²) with 2° aperture
Color Repeatability ^{1 2}	0.0005 for CIE 1931 x, y for Illum. A (2856K) at 0.003 fL (0.009cd/m ²) with 2° aperture
Polarization Error	<0.2%
Stray Light	< 0.06%
Storage	Secure Digital (SD) Card
AutoSync Range	20 to 400 Hz
Interfaces	USB, Bluetooth, RS232
Power Requirements	Rechargeable Li-ion battery or AC Adapter (90 - 240 VAC)
Battery Life	> 8 hours
Weight	13.25 lbs. (6.01 kg)
Dimensions	11.03 in. x 6.69 in. x 8.0 in. (28.0 cm x 17.0 cm x 20.3 cm)
Operating Temperature	34° to 95° F (1° to 35° C)
Humidity	0 - 90% non-condensing

Aperture vs Measurement Spot Size

Access.	Distance	Aperture				
		2°	1°	0.5°	0.250°	0.10°
MS-75 (355 mm to infinity)	355 mm	10.5 mm	5.25 mm	2.63 mm	1.315 mm	0.525 mm
	305 m	10.64 m	5.32 m	2.66 m	1.33 m	532 mm
SL-0.5X	94.1 mm to 137 mm	3.0 mm to 5.08 mm	1.5 mm to 2.54 mm	0.75 mm to 1.27 mm	0.375 mm to 0.635 mm	0.15 mm to 0.254 mm
	46 mm to 66 mm	1.78 mm to 2.64 mm	0.890 mm to 1.32 mm	0.445 mm to 0.660 mm	0.226 mm to 0.330 mm	0.089 mm to 0.132 mm
MS-2.5X	46 mm	1.02 mm	0.51 mm	0.225 mm	0.128 mm	0.051 mm
MS-5X	28 mm	0.578 mm	0.289 mm	0.145 mm	0.072 mm	0.0289 mm
MS-7.5	100 mm	35.0 mm	17.5 mm	8.75 mm	4.38 mm	1.75 mm
	30.5 m	10.64 m	5.32 m	2.66 m	1.33 m	532 mm
LA-730	Contact	13.2 mm	13.2 mm	13.2 mm	13.2 mm	13.2 mm
FP-730	Contact	3.17 mm	3.17 mm	3.17 mm	3.17 mm	3.17 mm

Luminance Sensitivity *

Access.	Aperture				
	2°	1°	0.5°	0.250°	0.10°
MS-75 fL (cd/m ²)	0.0001 (0.00034)	0.0004 (0.0014)	0.0016 (0.0055)	0.0064 (0.022)	0.041 (0.14)
SL-0.5X	0.0001 (0.00034)	0.0004 (0.0014)	0.0016 (0.0055)	0.0064 (0.022)	0.041 (0.14)
SL-1X	0.0001 (0.00034)	0.0004 (0.0014)	0.0016 (0.0055)	0.0064 (0.022)	0.041 (0.14)
MS-2.5X	0.00025 (0.0009)	0.001 (0.0034)	0.004 (0.0137)	0.016 (0.055)	0.10 (0.34)
MS-5X	0.0004 (0.0014)	0.0016 (0.0055)	0.0064 (0.022)	0.026 (0.089)	0.16 (0.55)
MS-7.5	0.0001 (0.00034)	0.0004 (0.0014)	0.0016 (0.0055)	0.0064 (0.022)	0.041 (0.14)
LA-730	0.0001 (0.00034)	0.0004 (0.0014)	0.0016 (0.0055)	0.0064 (0.022)	0.041 (0.14)
FP-730	0.00025 (0.0009)	0.001 (0.0034)	0.004 (0.0137)	0.016 (0.055)	0.10 (0.34)
CR-730 fc (lux)	0.0002 (0.002)	0.0008 (0.008)	0.0032 (0.032)	0.0128 (0.128)	0.08 (0.80)

* Stated sensitivities are for a precision of 10:1 against an Illuminant A (2856 K) source

- 1 - Luminance values are for the PR-730 with 8 nm bandwidth. For the PR-735, divide luminance values by 2.0.
- 2 - Luminance values are with the 8 nm bandwidth.
- 3 - For the PR-735, multiply bandwidth values by 2.
Specifications subject to change without notice.



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