

PHOTO RESEARCH®

PR-705/715 SpectraScan® Systems

What's new in the PR-705 / 715? The PR-705 / 715 is the latest generation in the SpectraScan family of self-scanning spectroradiometers. We've added features such as an on-board computer, multiple measuring apertures (up to six in a single instrument), built-in back-lit LCD readout, push-button control panel, RS-232 interface and built-in parallel printer port. No other instrument in its class offers this many standard features.



These hardware features make this SpectraScan a self-sufficient, stand-alone instrument. No computer is required to set-up the instrument, make measurements or display the calculated results.

Like all Photo Research photometers and spectroradiometers, the PR-705 / 715 utilizes Pritchard Optics for unambiguous target alignment.

Flexibility. Combined with the wide range of accessory lenses, the automated multi-aperture feature of the PR-705 / 715 provides the flexibility of addressing a wide range of applications that require increased sensitivity, decreased measuring spot size or both. Sizes range from a 2° to a 1/8° aperture and special apertures are available. The apertures can be actuated from the instrument menu system or from your PC!

Built-in Versatility. In addition to the stand-alone capability, we've built in "Remote Mode" software. With this simple to use programming language, you can communicate with the PR-705 / 715 over the built-in RS-232 interface. Command the PR-705 / 715 to make a measurement then port the calculated results (e.g. luminance, spectral data etc.) back to the host. This is an ideal tool for automation applications.

If you want to print measurement reports directly from the PR-705 / 715, the built-in parallel (Centronics) printer port allows you to do just that.

Increased sensitivity. This SpectraScan is over 60 times more sensitive than any other we've ever offered. This means that once difficult tasks such as spectrally based LCD contrast measurements can now be easily completed with sensitivity to spare.

Features

- Stand-alone, push-button operation
- Control measurements / data over RS-232 interface from virtually any computer
- Multiple measuring apertures (up to 6)
- Pritchard alignment optics
- Built-in parallel (Centronics) printer port
- Built-in, back-lit LCD display

Measuring Capabilities

- Luminance (optional illuminance, luminous intensity, luminous flux)
- Radiance (optional irradiance, radiant intensity, radiant flux)
- 1931 CIE x,y - 1976 u',v'
- Tristimulus Values (CIE 1931 X, Y, Z)
- Correlated Color Temperature
- Near Infra-red (PR-715 only)
- Temporal source measurement (optional)



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SpectraWin™ Windows® Software - For an easy-to-use, graphics based link to the PR-705 / 715, the optional *SpectraWin* software package provides a fully functional control, display and calculation platform. Features such as automated measurement sequences (reflectance, transmittance etc.), go/no go color measurements and a built in macro recorder make your measurement task as easy as point and shoot.

Specifications

Wavelength Range	PR-705: 380 - 780 nm PR-715: 380 - 1068 nm
Spectral Accuracy	PR-705: ± 2 nm PR-715: ± 4 nm
Spectral Bandwidth	≥ 2.5 nm. Bandwidth is dependent on aperture height and wavelength dispersion.
Available Apertures	2°, 1°, 1/2°, 1/4°, 1/8°. Select at time of purchase. Special horizontal aperture slits available.
Minimum Measuring Area	0.12 mm (0.005") with Standard MS-55 lens and 1/8° aperture 0.02 mm (0.001") with MS-5X lens and 1/8° aperture
Luminance Sensitivity for Illuminant A	0.003 cd/m ² (0.001 fl) for 2° aperture and MS-55 lens
Luminance Accuracy	± 2% to NIST traceable luminance standard at 2856 K
Luminance Repeatability	The standard deviation of repeat measurements over a 30 minute period is less than 0.1%.
Color Accuracy for Illuminant A	PR-705: x ± .0015 y ± .001 PR-715: x ± .003 y ± .002
Color Repeatability	± .0005 at a CCT of 2856 K
Polarization Error	Less than 5% when measuring linearly polarized sources in the visible range
Visual Field of View	8.5° with the MS-55 lens
Interfaces	RS-232 (serial), IEEE-488 (parallel - optional), Printer (parallel)
Digital Resolution	16 bits
Power	100V - 240V AC / 50-60 Hz
Weight	12 lbs. 6 oz. with MS-55 lens
Operating Temperature	1° - 30° C (34° - 86° F)
Humidity	0 - 90% non-condensing

- NOTES:
- The sensitivity values are for an Illuminant A incandescent source at a color temperature of 2856K. The low-light sensitivity is specified at a precision of 10% Relative Standard Deviation (RSD). Measurements can be made at lower light levels at reduced precision.
 - Optical bandwidth (full width, half-maximum) is a function of the aperture height. The values listed are for a PR-705. For the PR-715, the bandwidth values are double that of the PR-705. See to Measuring Field Coverage Chart for details.
 - To find the minimum to maximum photometric values for the PR-715, divide the values in the Sensitivity Chart by 2.0.
 - Special slit apertures are available - Contact PHOTO RESEARCH for details.
 - Specifications subject to change without notice.

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Sensitivity Chart

ACCESS.	DISTANCE	UNITS	APERTURE SIZE (DEGREES)				
			2°	1°	1/2°	1/4°	1/8°
MS-55	1.75 in. to ∞ (44 mm to ∞)	fl (cd/m ²)	0.001-500 (0.003-1.7K)	0.003 2K (0.01-6.8K)	0.012-8K (0.04-27.4K)	0.048-32K (0.16-109.6K)	0.192-128K (0.66-438K)
MS-1X	3.80 in. (97 mm)	fl (cd/m ²)	0.001-500 (0.003-1.7K)	0.003 2000 (0.01-6.8K)	0.012-8K (0.04-27.4K)	0.048-32K (0.16-109.6K)	0.192-128K (0.66-438K)
MS-2.5X	1.76 in. (45 mm)	fl (cd/m ²)	0.001-500 (0.003-1.7K)	0.003 2K (0.01-6.8K)	0.012-8K (0.04-27.4K)	0.048-32K (0.16-109.6K)	0.192-128K (0.66-438K)
MS-5X	1.11 in. (28 mm)	fl (cd/m ²)	0.0015-750 (0.0025-2.5K)	0.0045-3K (0.014-10.2K)	0.018-12K (0.06-41K)	0.072-48K (0.24-164K)	0.288-192K (0.96-656K)
MS-77	4.25 in. (108 mm)	fl (cd/m ²)	0.0015-750 (0.0025-2.5K)	0.0045-3K (0.014-10.2K)	0.018-12K (0.06-41K)	0.072-48K (0.24-164K)	0.288-192K (0.96-656K)
FP-55 Fiber Probe	NA	fl (cd/m ²)	0.0015-750 (0.0025-2.5K)	0.0045-3K (0.014-10.2K)	0.018-12K (0.06-41K)	0.072-48K (0.24-164K)	0.288-192K (0.96-656K)
CR-55 Cosine Receptor	NA	fc lux	0.004-2K (0.043-21.5K)	0.012-8K (0.13-86K)	0.048-32K (0.52-344K)	0.192-128K (2.06-137.5K)	0.768-512K (3.072-550K)

Measuring Field Coverage Chart

ACCESS	DISTANCE	APERTURE SIZE IN DEGREES (BANDWIDTH IN NANOMETERS)								
		2°	(20)	1°	(10)	1/2°	(5)	1/4°	(2.5)	1/8°
MS-55	1.75 in. (44 mm)	0.076 in. (1.93 mm)		0.038 in. (0.97 mm)		0.019 in. (0.48 mm)		0.009 in. (0.24 mm)		0.005 in. (0.12 mm)
	1000 ft. (305 meters)	420 in. (10.66 meters)		210 in. (5.33 meters)		105 in. (2.67 meters)		52.5 in. (1.33 meters)		26.3 in. (0.66 meters)
MS-1X	3.80 in. (97 mm)	0.076 in. (1.93 mm)		0.038 in. (0.97 mm)		0.019 in. (0.48 mm)		0.009 in. (0.24 mm)		0.005 in. (0.12 mm)
	1.76 in. (45 mm)	0.030 in. (0.76 mm)		0.015 in. (0.38 mm)		0.008 in. (0.19 mm)		0.004 in. (0.10 mm)		0.002 in. (0.05 mm)
MS-5X	1.11 in. (28 mm)	0.016 in. (0.38 mm)		0.008 in. (0.19 mm)		0.004 in. (0.10 mm)		0.002 in. (0.05 mm)		0.001 in. (0.02 mm)
	4.25 in. (108 mm)	0.026 in. (0.64 mm)		0.013 in. (0.32 mm)		0.006 in. (0.16 mm)		0.003 in. (0.08 mm)		0.002 in. (0.04 mm)

