HELIOS®Plus
Low Level Complete Systems
for Testing Sensitive Instruments

HELIOSPlus-LL L FAMILY

Great solution for night vision systems and security cameras

The HELIOSPlus-LL, L Family systems are classic QTH-based calibration sources designed for low level and MIL Spec night vision sensor testing. Dual detectors and automated attenuators give you the ability to dial in an exact level at challenging low limits of your sensors. Whether your work is scientific, military, intensified sensor testing or simulating low-signature level sources, the L Family will become a core calibration source for your lab.

Value:

• Targeted for low level use and absolute testing

• Automation and monitoring for use in dark-lab conditions

• High level of absolute characterization

• Spare ports and future upgrade capability

• Easy to configure a system to meet your exact requirements

Performance:

• 2856K Illuminant A QTH 250 - 2500 nm black-body like spectrums

• Extreme Dynamic Light Range:
Near daylight levels down to SNR-limited night vision light levels
   - Cameras and sensors >16bit, actual 32bit (199dB)
   - Dual detector for high and low level characterizations

L Family: Low Level

Model Number	USLR-L20F-NBNL-P	USLR-L12F-NBNL-P	USLR-L12L-NBNL-P	USLR-L08F-NBNL-P	USLR-L08L-NBNL-P
Smart Part Number	L5NB-NLNN-NNLR-NS00-0000-P	L3NB-NLNN-NNLR-NS00-0000-P	L4NB-NLNN-NNLR-NS00-0000-P	L1NB-NLNN-NNLR-NS00-0000-P	L2NB-NLNN-NNLR-NS00-0000-P

OPTICAL PERFORMANCE SPECIFICATIONS

Spatial Luminance Uniformity over Exit Port (f/4) - All Lamps On	+/-1%	+/-1%	+/-1%	+/-1%	+/-1%
Angular Uniform FOV (Full Angle) - Degrees / F# / NA - All Lamps On	+/-2.0% - 35° / 0.85 / 0.6	+/-2.0% - 35° / 0.85 / 0.6	+/-2.0% - 35° / 0.85 / 0.6	+/-2.0% - 35° / 0.85 / 0.6	+/-2.0% - 35° / 0.85 / 0.6
Expected Luminance Output: cd/m2	1,600	4,700	6,400	6,500	9,500
Expected Illuminance at Port: lux	5,000	14,800	20,000	20,300	30,000
Est. Peak Radiance: W/m2-sr-um @ 1.10 um	55	160	240	230	350
Est. Peak Irradiance @ Port: Photons/s-m2-um @ 1.10um	2.70E+20	8.10E+20	1.10E+21	1.10E+21	1.50E+21
Minimum Resolution: lux	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06
Number of Steps in System Range	8.80E+06	8.00E+06	8.00E+06	6.00E+06	6.00E+06
Dynamic Range/Bits/dB	4.00E+09/31/191	1.00E+10/32/199	1.00E+10/32/199	6.25E+09/31/196	7.50E+09/32/197
Approximate Correlated Color Temperature (QTH)	2856K +/-50K	2856K +/-50K	2856K +/-50K	2856K +/-50K	2856K +/-50K
Typical Derated Lamp Lifetimes @ 2856K (hrs)	>500	>500	>500	>500	>500
Est. Lamp Degradation Over Lifetime (% & CCT Shift)	-10% & +/-200K	-10% & +/-200K	-10% & +/-200K	-10% & +/-200K	-10% & +/-200K
Est. Output Degradation over 50hrs (% & CCT Shift)	-1.0% & +/-20K	-1.0% & +/-20K	-1.0% & +/-20K	-1.0% & +/-20K	-1.0% & +/-20K

INTEGRATING SPHERE

Coating / Material	Spectraflect®	Spectraflect	Spectralon®	Spectraflect	Spectralon
Sphere Internal Diameter: Inches (Meters)	20 (0.5)	12 (0.3)	11.5 (0.29)	8 (0.2)	7.5 (0.19)
Frame Type	20in Cage	12in Cage	12in Cage	8in Cage	8in Cage
Output Port Size: Inches (Meters)	8 (0.2)	4 (0.1)	4 (0.1)	2 (0.05)	2 (0.05)

SYSTEM COMPONENTS

QTH Lamps Internal (# , Wattage)	(3) 10, (1) 50	(3) 10, (1) 50	(1) 10, (3) 50	(2) 10, (1) 50	(2) 10, (1) 50
QTH Lamps External (#, Wattage)	None	None	None	None	None
Xenon Lamp & Housing	None	None	None	None	None
Spectralon Satellite Sphere (ID/OD)	3"/4"	3"/4"	3"/4"	3"/4"	3"/4"
Power Supplies (# - Model)	(4) LPS-175	(4) LPS-175	(4) LPS-175	(3) LPS-175	(3) LPS-175
Variable Attenuator	VAA-220B	VAA-220B	VAA-220B	VAA-220B	VAA-220B
Monitor Detector(s)	SD-L1, SD-S1	SD-L1, SD-S1	SD-L1, SD-S1	SD-L1, SD-S1	SD-L1, SD-S1
Detector Filters (in Filter Holder)	Photopic	Photopic	Photopic	Photopic	Photopic
System Software	HELIOSense	HELIOSense	HELIOSense	HELIOSense	HELIOSense

STANDARD SYSTEM CALIBRATIONS (NIST Traceable)

Luminance	Yes	Yes	Yes	Yes	Yes
Correlated Color Temp (All lamps matched & w/VA position)	Yes	Yes	Yes	Yes	Yes
Spectral Radiance (350-2400nm)	Yes	Yes	Yes	Yes	Yes
Exit Port Spatial Uniformity	Yes	Yes	Yes	Yes	Yes
Exit port Angular Uniformity	Yes	Yes	Yes	Yes	Yes
Night Vision Level Characterization	Yes	Yes	Yes	Yes	Yes
Operational Duration of Calibration	50hrs	50hrs	50hrs	50hrs	50hrs

Labsphere