

819 1.5" Series

Multifunctional Integrating Spheres



The 819 1.5" series multifunctional integrating sphere provides multiple measurement capabilities in a single integrating sphere device ideal for LIV testing and other divergent sources (e.g. VCSEL) measurements. The sphere includes a precision photodiode for calibrated average power measurement, a fast photodiode for pulse shape characterization on an oscilloscope and a built in SMA fiber adapter.



Features

- Small diameter integrating spheres with large input aperture
- A fiber optic port for connection to external equipment like spectrometer
- Fast photodiode for connection to a scope or other equipment for pulse characterization
- Compact housing designed for industrial use

819-SL-1.5 (400nW-4W) & 819-IG-1.5 (600nW-3W)

- Fast photodiode for pulse shape characterization of VCSELs
- Built in SMA fiber adapter for connection to a spectrometer
- Large, 20mm input port enabling long working distance
- Accepts wide beam divergence angle up to 60deg (depends on model)
- Small integrating sphere with short time constant

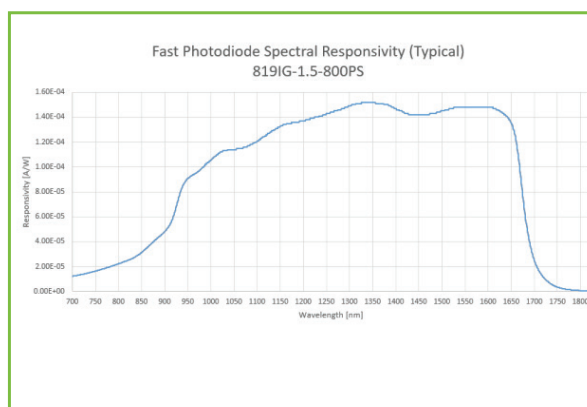
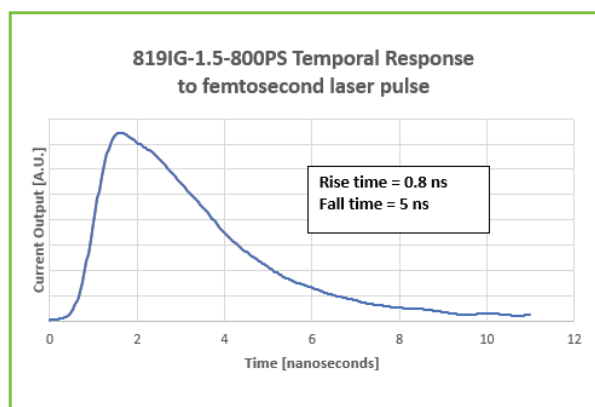
Model 819-IG-1.5-800PS

Calibrated multi-function integrating sphere, 1.5", 940-1640nm

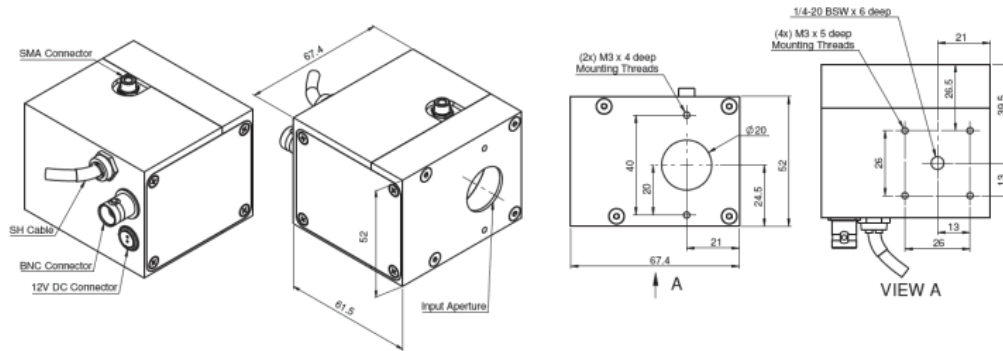
Specifications		Detector 2	
Input Port Aperture mm	Ø20	Type	Fast InGaAs photodiode
Maximum Beam Divergence deg°	±50	Function	Temporal pulse shape detection
Damage Threshold on Integrating Sphere Surface W/cm ²	200 (average power)	Spectral Range µm	0.94 – 1.64
Integrating Sphere Time Constant nsec	<0.7	Rise Time (10% to 90%) nsec	0.8
Fiber Optic Port	SMA connector, maximum NA 0.44	Fall Time (90% to 10%) nsec	5
Outputs	Smart Head for power measurement, BNC (50Ω) for temporal pulse shape detection SMA for optical fiber	Bias Voltage Input V	9
Cooling	Convection	Typical CW Responsivity mA/W ^(b)	0.14 @ 1100 - 1500nm
Operating Temperature Range °C	+15 to +40	Dark Current nA	1
Storage Temperature Range °C	-20 to +60	Noise Current fA/√Hz	15.5
Humidity	The product must not be exposed to high humidity. Range 20% ~ 70% RH noncondensing	Output	Analog current
Sensitivity to Beam Size and Angle	±2%		
Detector 1		General	
Type	InGaAs photodiode, calibrated	Weight g	530
Function	Average power	Compliance	CE, UKCA, China RoHS
Spectral Range µm	0.94 – 1.64	Part number	819-IG-1.5-800PS
Power Range	600nW – 3W		
Pulse Width	Not limited		
Pulse Repetition Rate ^(a)	Not limited		
Power Scales	3W to 3µW		
Power Accuracy	±3% 940nm - 1100nm, ±4% 1100nm - 1640nm		
Linearity with Power ±%	2		
Power Noise Level nW	30		
Output	Smart Head, D15		

Notes: (a) Below 200Hz use low frequency mode in meter

(b) Responsivity data provided with sensor



819-IG-1.5-800PS



Model 819-SL-1.5-800PS

Calibrated multi-function integrating sphere, 1.5", 400-1100nm

Specifications		Detector 2	
Input Port Aperture mm	Ø20	Type	Fast Si photodiode
Maximum Beam Divergence ^{(a)(b)} deg°	±60	Function	Temporal pulse shape detection
Damage Threshold on Integrating Sphere Surface W/cm ²	200 (average power)	Spectral Range µm	0.4 – 1.1
Integrating Sphere Time Constant nsec	0.7 typ.	Rise Time nsec	0.8
Fiber Optic Port	SMA connector, maximum NA 0.44	Fall Time nsec	2.8
Outputs	Smart Head for power measurement, BNC (50Ω) for temporal pulse shape detection SMA for optical fiber	Bias Voltage Input VDC	12
Cooling	Convection	Peak CW Responsivity @ 740nm µA/W ^(d)	135 typ.
Operating Temperature Range °C	+15 to +40	CW Responsivity @ 940nm µA/W ^(d)	55 typ.
Storage Temperature Range °C	-20 to +60	Saturation Current Output mA	2.7 (for 10 ns pulse)
Humidity	The product must not be exposed to high humidity. Range 20% ~ 70% RH noncondensing	Dark Current nA	0.3 typ., 1 max
		Noise Current fA/√Hz	18 typ.
		Output	Analog current, BNC
Detector 1		General	
Type	Si photodiode, calibrated	Weight g	530
Function	Average power	Compliance	CE, UKCA, China RoHS
Spectral Range µm	0.4 – 1.1	Part number	819-SL-1.5-800PS
Power Range	400nW – 4W		
Power Scales	4W – 40µW		
Power Accuracy ^(b)	±3% 430nm - 1000nm, ±4% <430nm, ±7% >1000nm		
Linearity with Power ±%	2		
Power Noise Level nW	20 typ.		
Saturation Pulse Energy mJ	2 typ.		
Calibration Uncertainty nm	±1.1% 430-1000 ^(c)		
Output	Smart Head, D15		

Notes: (a) For central 2 mm diameter of entrance aperture

(b) Power Accuracy and Sensitivity to Beam Size and Angle specifications apply to beam divergence up to ±45° and central 5.6 mm diameter of entrance aperture, for larger divergence and/or area of entrance aperture these specifications increase by 2%

(c) For calibration uncertainty of wavelengths outside of this range see table on page 24

(d) Responsivity data provided with sensor

Model 819-SL-1.5-800PS

