819 1.5" Series

Multifunctional Integrating Spheres

mks | Newport

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)

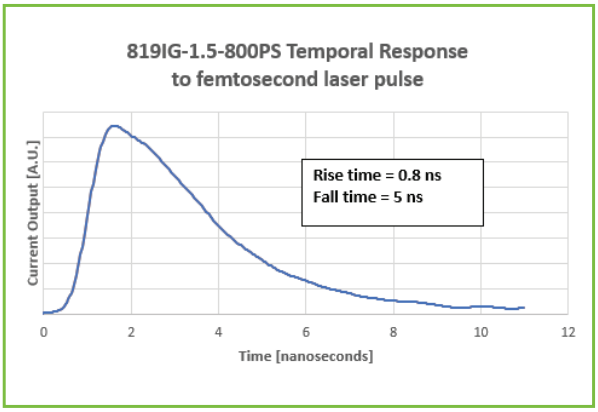
- Fast photodiode for pulse shape characterization of VCSELs
- Built in SMA fiber adapter for connection to a spectrometer
- Large, 20mm input port enabling long working distance
- Accepts wide beam divergence angle up to 60deg (depends on model)
- Small integrating sphere with short time constant

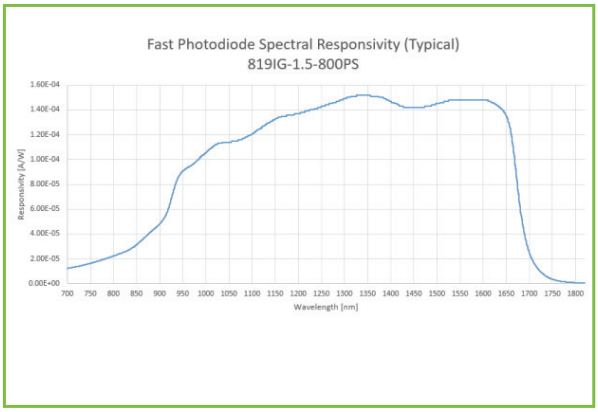
Model 819-IG-1.5-800PS

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

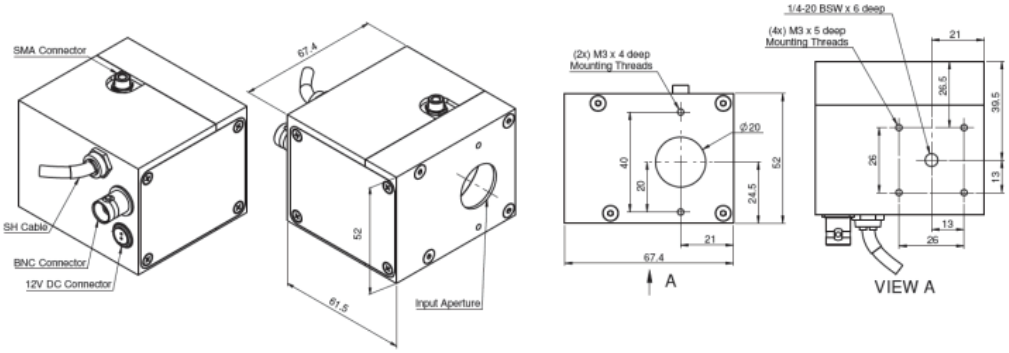
Specifications			
Input Port Aperture mm	Ø20	Cooling	Convection
Maximum Beam Divergence Degrees	±60 [a]	Operating Temperature Range °C	+15 to +40
Sensitivity to Beam Size and Angle	±2% [b] [c]	Storage Temperature Range °C	-20 to +60
Damage Threshold on Integrating Sphere Surface W/cm^2	200 (average power)	Humidity Range	20% ~ 70% RH noncondensing. The product must not be exposed to high humidity
Integrating Sphere Time Constant nsec	<0.7	Weight g	530
Fiber Optic Port	SMA connector, maximum NA 0.44	Compliance	CE, UKCA, China RoHS
Outputs	Smart Head for power measurement, BNC (50Ω) for temporal pulse shape detection SMA for optical fiber	Power Supply	Push-pull 2 pin power supply 12 VDC (P/N 7E05047A)
Detector 1		**Detector 2**	
Type	InGaAs photodiode, calibrated	Type	Fast InGaAs photodiode
Function	Average power	Function	Temporal pulse shape detection
Spectral Range µm	0.94 – 1.64	Spectral Range µm	0.94-1.64
Power Range	600nW – 3W	Rise Time (10% to 90%) nsec	0.8
Pulse Width	Not limited	Fall Time (90% to 10%) nsec	5
Pulse Repetition Rate [d]	Not limited	Bias Voltage Input V	9
Power Scales	3W to 3µW	Typical CW Responsivity mA/W [e]	0.14@1100-1500nm
Power Accuracy	±3% 940nm - 1100nm, ±4% 1100nm - 1640nm	Dark Current nA	1
Linearity with Power ±%	2	Noise Current fA/√Hz	15.5
Power Noise Level nW	30	Output	Analog current
Saturation Pulse Energy mJ	1.3		
Calibration Uncertainty	±2.4% 940nm - 1430nm ±2.6% 1430nm - 1600nm		
Output	SmartHead, D15		
Part Number	**819-IG-1.5-800PS**		

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 scanned beams with divergence angle < ±40°, the maximum acceptance angle of the sphere is ±50°
(d) Below 200Hz use low frequency mode in meter
(e) Responsivity data provided with sensor





819-IG-1.5-800PS

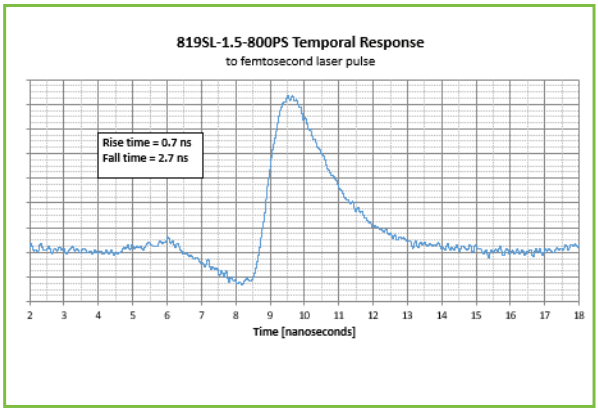


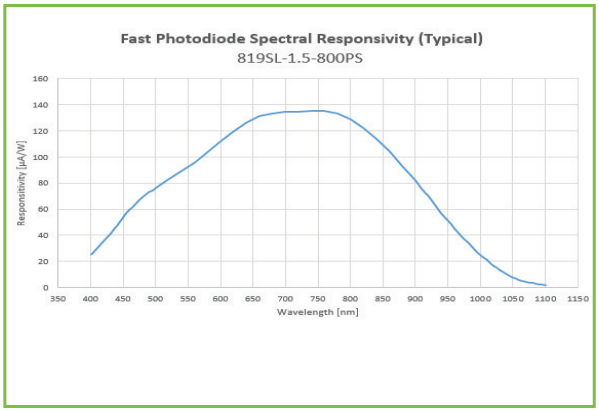
Model 819-SL-1.5-800PS
Calibrated multi-function integrating sphere, 1.5", 400-1100nm

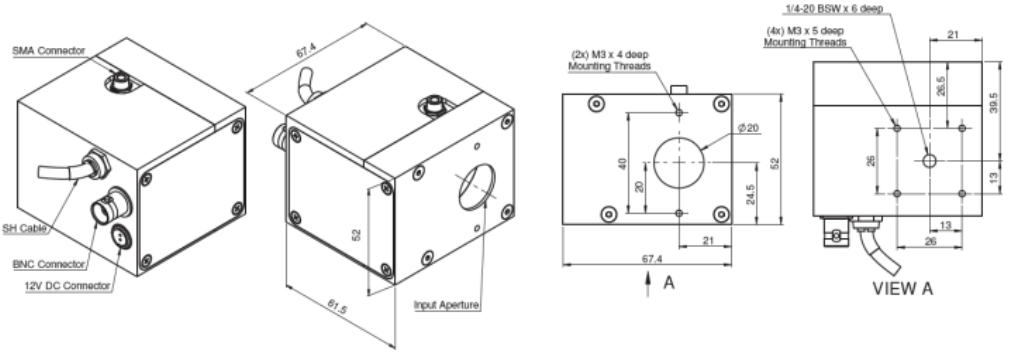
Specifications			
Input Port Aperture mm	Ø20	Cooling	Convection
Maximum Beam Divergence Degrees	±60 [a]	Operating Temperature Range °C	+15 to +40
Sensitivity to Beam Size and Angle	±2% [b] [c]	Storage Temperature Range °C	-20 to +60
Damage Threshold on Integrating Sphere Surface W/cm^2	200 (average power)	Humidity Range	20% ~70% RH noncondensing. The product must not be exposed to high humidity
Integrating Sphere Time Constant nsec	0.7 typ.	Weight g	530
Fiber Optic Port	SMA connector, maximum NA 0.44	Compliance	CE, UKCA, China RoHS
Outputs	Smart Head for power measurement, BNC (50Ω) for temporal pulse shape detection SMA for optical fiber	Power Supply	Push-pull 2 pin power supply 12 VDC (P/N 7E05047A)
Detector 1		**Detector 2**	
Type	Si photodiode, calibrated	Type	Fast Si photodiode
Function	Average power	Function	Temporal pulse shape detection
Spectral Range µm	0.4 – 1.1	Spectral Range µm	0.4 – 1.1
Power Range	400nW – 4W	Rise Time (10% to 90%) nsec	0.8
Pulse Width	Not Limited	Fall Time (90% to 10%) nsec	2.8
Pulse Repetition Rate [d]	Not Limited	Bias Voltage Input V	12
Power Scales	4W – 40µW	Peak CW Responsivity @ 740nm µA/W [e]	135 typ.
Power Accuracy	±3% 430nm - 1000nm, ±4% <430nm, ±7% >1000nm	Dark Current nA	0.3 typ., 1 max
Linearity with Power ±%	2	Noise Current fA/√Hz	18 typ.
Power Noise Level nW	20 typ.	Output	Analog current
Saturation Pulse Energy mJ	2 typ.		
Calibration Uncertainty nm	±1.1% 430-1000		
Output	SmartHead, D15		
Part Number	**819-SL-1.5-800PS**		

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 scanned beams with divergence angle < ±40°, the maximum acceptance angle of the sphere is ±50°
(d) Below 200Hz use low frequency mode in meter
(e) Responsivity data provided with sensor

Model 819-SL-1.5-800PS







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