IntelliGain® Broadband ASE Light Sources

Enlightening Fiber Optic Networks

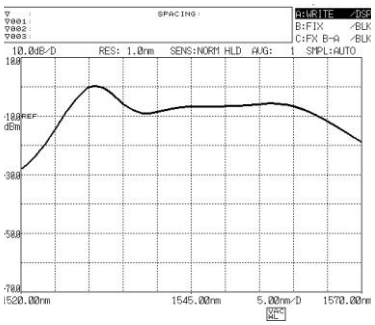
Features:

- High output power
- High spectral stability
- Non-polarized light output
- Low power consumption
- Compact size

Applications:

- Optical component spectral tests
- DWDM system and component tests
- Optical measurement systems
- Optical sensing

BaySpec's ***IntelliGain***® Broadband ASE Light Sources are based on amplified spontaneous emission in erbium-doped fibers and are developed using our proprietary EDFA technology. These light sources provide superior optical output to the conventional LED sources over a broad spectral range (1525 - 1605 nm). Different power levels and multi-output options are available and suitable for a variety of different applications, providing cost effective solutions to the market.



Parameter	Unit	C-Band Normal	C-Band Flat-Top	C+L Band Normal	Note
Wavelength Range	nm	1525 - 1565	1525 - 1565	1525 - 1605	
Maximum Output Power	dBm	> 16	> 11	> 16	
Spectral Density	dBm/nm	> -10	> -10	> -17	
Power Stability	dB	< 0.03	< 0.03	< 0.03	After 1 hour warming up
Power Supply	V	100 - 240	100 - 240	100 - 240	
Power Consumption	W	< 10	< 10	< 12	
Operating Temperature	°C	0 to 40	0 to 40	0 to 40	
Storage Temperature	°C	-40 to 80	-40 to 80	-40 to 80	
Optical Fiber	-	SMF-28	SMF-28	SMF-28	
Optical Connector	-	FC/PC	FC/PC	FC/PC	Customer specify
Dimension	mm	212×88×203			OEM

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Fiber Coupled Wideband Light Sources

The MiuniLite® Series 650 ~ 1690nm

BaySpec's *MiniLite*® Series fiber-coupled Wideband Light Sources are designed to enhance Spectral Domain Optical Coherence Tomography(OCT), Medical Imaging, Fiber Optic Sensing, Analytical Spectroscopy, and Test & Measurement capabilities in the 650nm-1690 nm wavelength region. Devices benefit from low-cost field proven telecommunication components.

Card-mount option with Heat-sink

Key Features:

- Fiber optic coupled, wide spectral coverage
- Compact size, ready for OEM integration
- Solid state light source, reliable operation in harsh environments
- Operates over wide 0 to +70˚C temperature range
- Operates in high +85% relative humidity environments
- Covers wavelength ranges from 650-1690 nm

Applications:

- Spectral Domain OCT
- Fiber Optic Sensing
- NIR Spectroscopy
- T&M Source
- Laboratory Source
- Medical Diagnostics

Bench-top option

Specifications:	Data	Unit
Wavelength Range	650-1690nm (user selection)	nm
Spectral Width	Typical 100 nm in a single source; specify combined source for wider coverage	nm
Output power	Up to 30	mW
Output power stability	+/-0.01 dB after 10 min warm-up	
Operating temperature	0 to 70	˚C
Total Power Consumption	< 5 Max.	W
Temperature Control	un-cooled or TE cooled	
Size	Card-mount: 80 x 80 x 43 mm^3 Bench-top: 212 x 88 x 203 mm^3	mm^3

Part Number Selection:

MWLS - □ - □□□□ - □□□ - □□ - □□

Code	Enclosure Type
C	Card-mount
B	Bench-top

Code	Center λ
Please specify the center wavelength i.e. :	
0850	850.00 nm
1310	1310.00 nm
1550	1550.00 nm
xxxx	specify

Code	FWHM
050	50 nm
120	120 nm
xxx	Specify

Code	Fiber Type
SM	Single mode
MM	Multi-mode
xx	Custom

Code	Connector Type
NC	No Connector
FA	FC/APC
FP	PC/PC
LA	LC/APC
LP	LC/PC
SA	SC/APC
SP	SC/PC
xy	Custom

Std fiber length 1m ±0.1m

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IntelliGain® Series Metro EDFAs

Enlightening Fiber Optic Networks

Features:

- Thermal-electrically cooled all-in-one electronics design
- Low power consumption
- Compact mechanical package
- Amplified and calibrated monitor signals
- Input surge protection
- All circuits are integrated inside the EDFA package

BaySpec supplies **IntelliGain**® series metro erbium-doped fiber amplifiers (EDFAs) designed for OEM integration into applications that require a high gain and a low noise figure. The **IntelliGain**® Metro_AE modules feature low power consumption, high efficiency and compact mechanical package. The driving and controlling electronics are fully integrated into the 120×95×13 mm^3 package. The amplifiers have a typical noise figure of <5.0 dB across the entire 1530-nm to 1562-nm wavelength range and meet Bellcore GR-1312-Core requirements.

Parameter	Unit	Metro-I_AD EDFA	Metro-II_AD EDFA	Metro-III_AD EDFA	Notes
Operating Temperature	°C	-5 to 70	-5 to 70	-5 to 70	Bellcore Qualified
Wavelength Range	nm	1530 -1562	1530 -1562	1530 -1562	
Saturated Output Power	dBm	+5	+10	+15	Pin = -3 dBm
Small Signal Gain	dB	15	20	25	Pin = -20 dBm
Noise Figure	dB	5.5	5.5	5.5	Pin = -10 dBm
Polarization Sensitivity	dB	< 0.3	< 0.3	< 0.3	-
Return Loss (Input & Output)	dB	> 35	> 35	> 35	Pin = -10 dBm @ Pump off
Pump Wavelength	nm	980	980	980	
Pump Current	mA	80	150	300	
Pump Forward Voltage	V	< 1.5	< 1.8	< 2.0	
Operating Current	A	< 0.8	< 1.2 A	< 1.5	
Operating Voltage	V DC	+ 5 V DC	+ 5 V DC	+ 5 V DC	
Total Power Consumption	W	☐ 4.0 W	☐ 6.0 W	☐ 7.5 W	
Dimension	mm	120 × 95 × 13			

Notes

- Total power consumption depends upon environment operating temperature.
- Mechanical drawings of layout and electronics pin out are provided upon request.
- Custom design available.

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Fiber-Coupled 532nm Laser

MiniLite® Laser 532nm Multi-mode Narrowband Series

BaySpec's *MiniLite*® 532nm Multi-mode fiber lasers are designed to enhance Analytical Raman Spectroscopy and Test & Measurement capabilities in the 532nm wavelength region. Devices benefit from low-cost field proven telecommunication components.

Card-mount option with Heat-sink

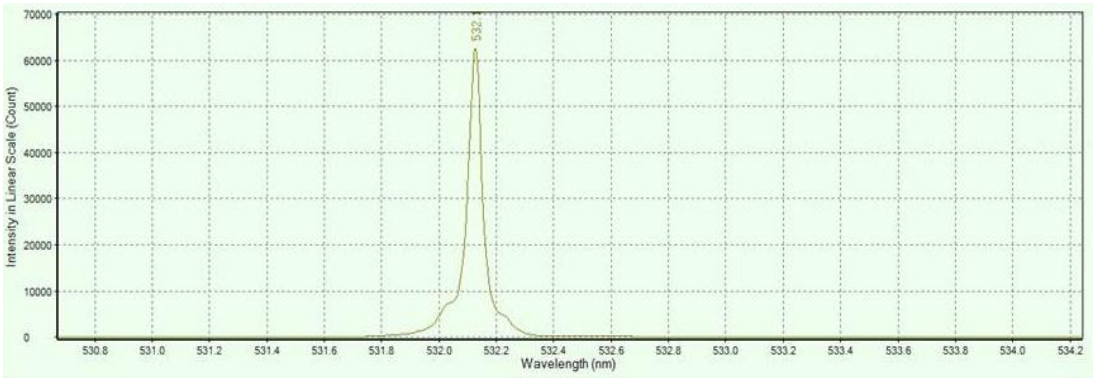
Part Number:

MNLS-C-MM-0532 (Card-mount option)
MNLS-B-MM-0532 (Bench-top option)

Key Features:

- Fiber optic coupled, narrow spectral coverage
- Compact size with, ready for OEM intergration
- Solid state light source, reliable operation in harsh environments
- Operates over wide -5 to +55°C temperature range
- Operates in high +85% relative humidity environments
- Center wavelength 532nm

Bench-top option



Parameter	Unit	Min.	Typical	Max.
Threshold Current	mA			0.5
Operating Forward Current	mA			1.2
Operating Forward Voltage	V			2.1
Fiber Coupled Output Power	mW		80	
Center Wavelength	nm	531	532	533
Spectral Width (FWHM)	nm		0.3	
Wavelength stability (+/-)	pm		50	
TEC Current	A			2
TEC Voltage	V			4
Temperature stability of laser	°C			0.1
Fiber Type	105 µm core Multi-mode Fiber, N.A. 0.22			
Power Supply	100~220V AC for Bench-top 5V DC for Card-mount			
Size	Ultra-compact: 120 x 95 x 26 mm^3 Benchtop: 212 x 88 x 203 mm^3			

Specifications are subject to change without notice

Applications:

- Raman Spectroscopy
- Confocal Microscopy
- Medical Diagnostics
- Fiber Optic Sensing
- VIS-NIR Spectroscopy
- T&M Source
- Laboratory Source

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Fiber-Coupled 647nm Laser

MiniLite® Laser 647nm Multi-mode Narrowband Series

BaySpec's *MiniLite*® 647nm Multi-mode fiber lasers are designed to enhance Analytical Raman Spectroscopy and Test & Measurement capabilities in the 647nm wavelength region. Devices benefit from low-cost field proven telecommunication components.

Card-mount option with Heat-sink

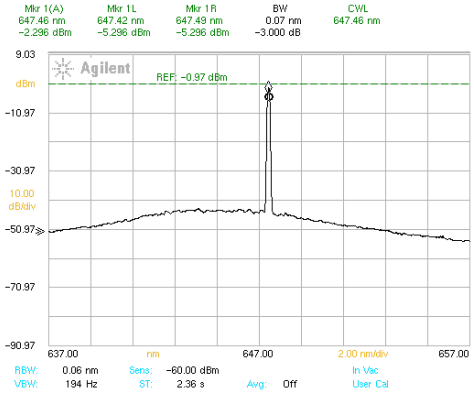
Part Number:

MNLS-C-MM-0647 (Card-mount option)
MNLS-B-MM-0647 (Bench-top option)

Key Features:

- Fiber optic coupled, narrow spectral coverage
- Compact size with, ready for OEM intergration
- Solid state light source, reliable operation in harsh environments
- Operates over wide -5 to +55°C temperature range
- Operates in high +85% relative humidity environments
- Center wavelength 647nm

Bench-top option



Parameter	Unit	Min.	Typical	Max.
Threshold Current	mA		700	
Operating Forward Current	mA		1550	1850
Operating Forward Voltage	V		2.0	2.1
Fiber Coupled Output Power	mW		350	400
Center Wavelength	nm	646	647	648
Spectral Width (FWHM)	nm	0.05	0.08	0.18
Wavelength stability (+/-)	pm	5	10	50
TEC Current	A			2
TEC Voltage	V			4
Temperature stability of laser	°C			0.1
Side Mode Suppression Ratio	dB		45	
Fiber Type	105 μm Multi-mode Fiber, N.A. 0.22			
Power Supply	100~220V AC for Bench-top 5V DC for Card-mount			
Size	Ultra-compact: 120 x 95 x 26 mm^3 Benchtop: 212 x 88 x 203 mm^3			

Specifications are subject to change without notice

Applications:

- Raman Spectroscopy
- Confocal Microscopy
- Medical Diagnostics
- Fiber Optic Sensing
- VIS-NIR Spectroscopy
- T&M Source
- Laboratory Source

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Fiber-Coupled 785nm Laser

MiniLite® Laser 785nm Multi-mode Narrowband Series

Card-mount option with Heat-sink

Bench-top option

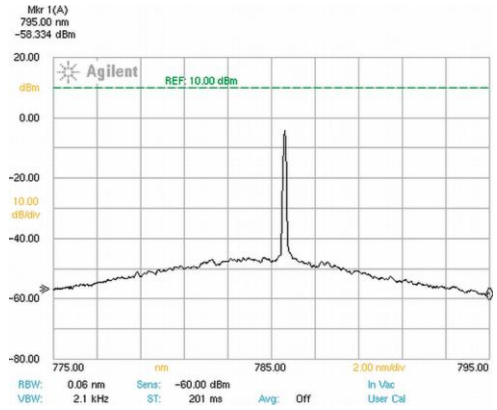
BaySpec's *MiniLite*® 785nm Multi-mode fiber lasers are designed to enhance Analytical Raman Spectroscopy and Test & Measurement capabilities in the 785nm wavelength region. Devices benefit from low-cost field proven telecommunication components.

Part Number:

MNLS-C-MM-0785 (Card-mount option)
MNLS-B-MM-0785 (Bench-top option)

Key Features:

- Fiber optic coupled, narrow spectral coverage
- Compact size with, ready for OEM intergration
- Solid state light source, reliable operation in harsh environments
- Operates over wide -5 to +55°C temperature range
- Operates in high +85% relative humidity environments
- Center wavelength 785nm



Parameter	Unit	Min.	Typical	Max.
Threshold Current	mA			700
Operating Forward Current	mA			2000
Operating Forward Voltage	V		1.8	2.5
Fiber Coupled Output Power	mW		700	800
Center Wavelength	nm	784	785	786
Spectral Width (FWHM)	nm	0.05	0.08	0.18
Wavelength stability (+/-)	pm	5	10	50
TEC Current	A			2
TEC Voltage	V			4
Temperature stability of laser	°C			0.1
Side Mode Suppression Ratio	dB		40	
Fiber Type	105 μm Multi-mode Fiber, N.A. 0.22			
Power Supply	100~220V AC for Bench-top 5V DC for Card-mount			
Size	Ultra-compact: 120 x 95 x 26 mm^3 Benchtop: 212 x 88 x 203 mm^3			

Specifications are subject to change without notice

Applications:

- Raman Spectroscopy
- Confocal Microscopy
- Medical Diagnostics
- Fiber Optic Sensing
- VIS-NIR Spectroscopy
- T&M Source
- Laboratory Source

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Fiber-Coupled 785nm Laser

MiniLite® Laser 785nm Single-mode Narrowband Series

Card-mount option with Heat-sink

Bench-top option

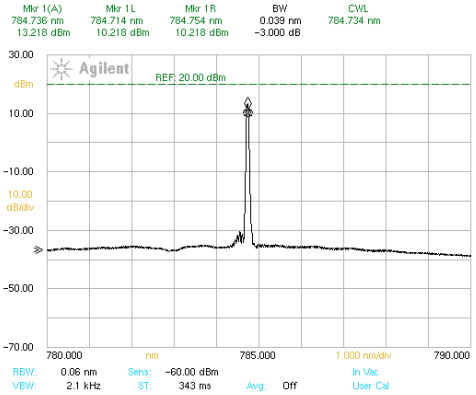
BaySpec's *MiniLite*® 785nm Single-mode fiber lasers are designed to enhance Analytical Raman Spectroscopy and Test & Measurement capabilities in the 785nm wavelength region. Devices benefit from low-cost field proven telecommunication components.

Part Number:

MNLS-C-SM-0785 (Card-mount option)
MNLS-B-SM-0785 (Bench-top option)

Key Features:

- Fiber optic coupled, narrow spectral coverage
- Compact size with, ready for OEM intergration
- Solid state light source, reliable operation in harsh environments
- Operates over wide -5 to +55°C temperature range
- Operates in high +85% relative humidity environments
- Center wavelength 785nm



Parameter	Unit	Min.	Typical	Max.
Threshold Current	mA			70
Operating Forward Current	mA			110
Operating Forward Voltage	V		2	
Fiber Coupled Output Power	mW		40	
Center Wavelength	nm		785	
Spectral Width (FWHM)	nm		0.06	
Wavelength stability (+/-)	pm	5	10	30
TEC Current	A			0.4
TEC Voltage	V			0.8
Temperature stability of laser	°C			0.1
Side Mode Suppression Ratio	dB		30	
Fiber Type	5.5/125/900 μm Single-mode Fiber or PM Fiber			
Power Supply	100~220V AC for Bench-top 5V DC for Card-mount			
Size	Ultra-compact: 120 x 95 x 26 mm^3 Benchtop: 212 x 88 x 203 mm^3			

Specifications are subject to change without notice

Applications:

- Raman Spectroscopy
- Confocal Microscopy
- Medical Diagnostics
- Fiber Optic Sensing
- VIS-NIR Spectroscopy
- T&M Source
- Laboratory Source

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Fiber-Coupled 1064nm Laser

MiniLite® Laser 1064nm Multi-mode Narrowband Series

Card-mount option with Heat-sink

Bench-top option

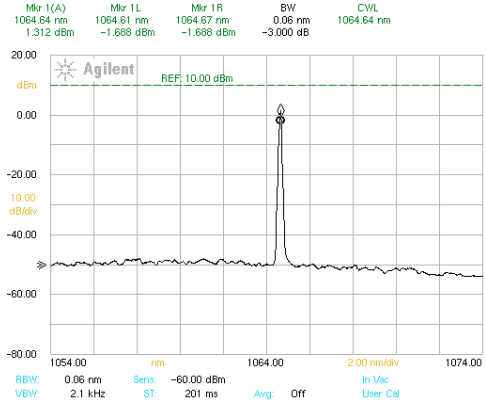
BaySpec's *MiniLite*® 1064nm Multi-mode fiber lasers are designed to enhance Analytical Raman Spectroscopy and Test & Measurement capabilities in the 1064nm wavelength region. Devices benefit from low-cost field proven telecommunication components.

Part Number:

MNLS-C-MM-1064 (Card-mount option)
MNLS-B-MM-1064 (Bench-top option)

Key Features:

- Fiber optic coupled, narrow spectral coverage
- Compact size with, ready for OEM intergration
- Solid state light source, reliable operation in harsh environments
- Operates over wide -5 to +55°C temperature range
- Operates in high +85% relative humidity environments
- Center wavelength 1064nm



Parameter	Unit	Min.	Typical	Max.
Threshold Current	mA	10		250
Operating Forward Current	mA			1200
Operating Forward Voltage	V		1.5	2.5
Fiber Coupled Output Power	mW			750
Center Wavelength	nm		1064	
Spectral Width (FWHM)	nm	0.05	0.08	0.18
Wavelength stability (+/-)	pm	5	10	30
TEC Current	A			1.5
TEC Voltage	V			3.0
Temperature stability of laser	°C			0.1
Side Mode Suppression Ratio	dB		30	
Fiber Type	Multi-mode PM Fiber			
Power Supply	100~220V AC for Bench-top 5V DC for Card-mount			
Size	Ultra-compact: 120 x 95 x 26 mm^3 Benchtop: 212 x 88 x 203 mm^3			

Specifications are subject to change without notice

Applications:

- Raman Spectroscopy
- Confocal Microscopy
- Medical Diagnostics
- Fiber Optic Sensing
- VIS-NIR Spectroscopy
- T&M Source
- Laboratory Source

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Fiber-Coupled 1064nm Laser

MiniLite® Laser 1064nm Single-mode Narrowband Series

Card-mount option with Heat-sink

Bench-top option

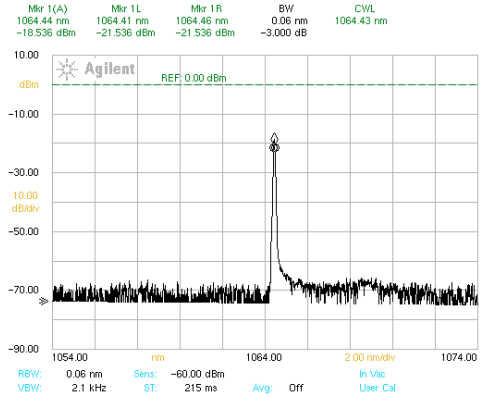
BaySpec's *MiniLite*® 1064nm Single-mode fiber lasers are designed to enhance Analytical Raman Spectroscopy and Test & Measurement capabilities in the 1064nm wavelength region. Devices benefit from low-cost field proven telecommunication components.

Part Number:

MNLS-C-SM-1064 (Card-mount option)
MNLS-B-SM-1064 (Bench-top option)

Key Features:

- Fiber optic coupled, narrow spectral coverage
- Compact size with, ready for OEM intergration
- Solid state light source, reliable operation in harsh environments
- Operates over wide -5 to +55°C temperature range
- Operates in high +85% relative humidity environments
- Center wavelength 1064nm



Parameter	Unit	Min.	Typical	Max.
Threshold Current	mA	10		70
Operating Forward Current	mA			1000
Operating Forward Voltage	V		1.5	2.5
Fiber Coupled Output Power	mW	250	400	499
Center Wavelength	nm		1064	
Spectral Width (FWHM)	nm	0.05	0.08	0.18
Wavelength stability (+/-)	pm	5	10	30
TEC Current	A			1.5
TEC Voltage	V			3.0
Temperature stability of laser	°C			0.1
Side Mode Suppression Ratio	dB		30	
Fiber Type	Single-mode PM Fiber			
Power Supply	100~220V AC for Bench-top 5V DC for Card-mount			
Size	Ultra-compact: 120 x 95 x 26 mm^3 Benchtop: 212 x 88 x 203 mm^3			

Specifications are subject to change without notice

Applications:

- Raman Spectroscopy
- Confocal Microscopy
- Medical Diagnostics
- Fiber Optic Sensing
- VIS-NIR Spectroscopy
- T&M Source
- Laboratory Source

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Fiber-Coupled 1310nm Laser

MiniLite® Laser 1310nm Single-mode Narrowband Series

BaySpec's *MiniLite*® 1310nm Single-mode fiber lasers are designed to enhance Analytical Raman Spectroscopy and Test & Measurement capabilities in the 1310nm wavelength region. Devices benefit from low-cost field proven telecommunication components.

Card-mount option with Heat-sink

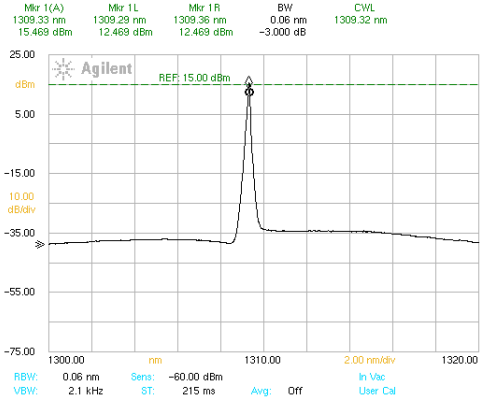
Part Number:

MNLS-C-SM-1310 (Card-mount option)
MNLS-B-SM-1310 (Bench-top option)

Key Features:

- Fiber optic coupled, narrow spectral coverage
- Compact size with, ready for OEM intergration
- Solid state light source, reliable operation in harsh environments
- Operates over wide -5 to +55°C temperature range
- Operates in high +85% relative humidity environments
- Center wavelength 1310nm

Bench-top option



Parameter	Unit	Min.	Typical	Max.
Threshold Current	mA		120	200
Operating Forward Current	mA		1100	1300
Operating Forward Voltage	V		1.6	1.8
Fiber Coupled Output Power	mW	250		
Center Wavelength	nm	1309	1310	1311
Spectral Width (FWHM)	nm	0.1		2
Wavelength stability (+/-)	pm	5	10	30
TEC Current	A			3
TEC Voltage	V			4
Temperature stability of laser	°C			0.1
Side Mode Suppression Ratio	dB		30	
Fiber Type	Single-mode PM Fiber			
Power Supply	100~220V AC for Bench-top 5V DC for Card-mount			
Size	Ultra-compact: 120 x 95 x 26 mm^3 Benchtop: 212 x 88 x 203 mm^3			

Specifications are subject to change without notice

Applications:

- Raman Spectroscopy
- Confocal Microscopy
- Medical Diagnostics
- Fiber Optic Sensing
- VIS-NIR Spectroscopy
- T&M Source
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