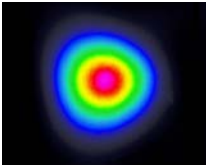


# OBIS

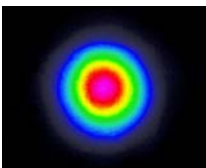
## Lasers for Plug-and-Play Simplicity Across the Spectrum

OBIS is the breakthrough laser platform offering plug-and-play simplicity from the UV to the near IR, allowing for faster integration and reduced time to market.

Based on Coherent's proprietary Optically Pumped Semiconductor Laser (OPSL) technology and its laser diode based solutions, OBIS lasers are the ideal solution for a wide range of applications including life sciences, environmental monitoring, and inspection. With wavelengths offered throughout the spectrum - from the UV at 375 nm to the near IR at 785 nm - OBIS lasers offer users the ability to tailor wavelengths to their application requirements. Low RMS noise and impressive beam quality is a key specification to offer your application superior power and signal-to-noise.



OBIS LX uses high quality optics to create a diode laser with a low astigmatism circular beam. Beam measurements are made at the 90/10 Clip Levels to insure the highest mode quality while measuring a majority of the beam.



OBIS LS uses Optically Pumped Semiconductor Laser technology to provide the highest quality beam. OPSL offers advantages of excellent circularity and beam parameters (divergence, diameter) that are constant over a wide power range.



**Superior Reliability & Performance**

### **OBIS Features:**

- **Compact and identical foot print, dimensions, beam exit, interface, power supply, protocol**
- **Integrated control electronics**
- **OEM and end user versions**
- **Superior beam quality**
- **Analog and digital modulation**
- **USB with complete I/O and controls**
- **Superior reliability**

### **OBIS Applications:**

- **Confocal Microscopy**
- **DNA Sequencing**
- **Flow Cytometry**
- **Medical Imaging and Instrumentation**

System Specifications	OBIS 375LX		OBIS 405LX		OBIS 422LX	OBIS 445LX
Wavelength <sup>1</sup> (nm)	375		405		422	445
Output Power <sup>2</sup> (mW)	16	50	50, 100	200	100	75
Spatial Mode	TEM <sub>00</sub>		TEM <sub>00</sub>		TEM <sub>00</sub>	TEM <sub>00</sub>
M <sup>2</sup> (Beam Quality) <sup>3</sup>	≤1.3		≤1.2	≤1.3	≤1.2	≤1.2
Beam Asymmetry	≤1:1.2		≤1:1.2		≤1:1.2	≤1:1.2
Beam Diameter at 1/e <sup>2</sup> (mm)	0.7 ±0.1		0.8 ±0.1		0.9 ±0.1	0.6 ±0.1
Beam Divergence (mrad, full-angle)	<1		<1		<1.1	<1.1
Pointing Stability (μrad) (over 2 hours after warm-up and ±3°C)	<30		<30		<30	<30
Pointing Stability Over Temp. (μrad/°C)	<5		<5		<5	<5
RMS Noise (%) (20 Hz to 20 MHz)	≤0.05		≤0.05		≤0.05	≤0.05
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	<0.5		<0.5		<0.5	<0.5
Long-term Power Stability (%) (8 hrs., ±3°C)	<2		<2		<2	<2
Warm-up Time <sup>4</sup> (minutes) (from cold start)	<5		<5		<5	<5
Polarization Ratio	Minimum 100:1, Vertical ±5°					
Laser Drive Modes	CW, Analog Modulation, Digital Modulation and Computer Control					
Digital Modulation						
Maximum Bandwidth (MHz)	75		150		150	150
Rise Time (10% to 90%) (nsec)	<5		<2		<2	<2
Fall Time (90% to 10%) (nsec)	<5		<2		<2	<2
Modulation Depth (extinction ratio)	>1,000,000:1 at 0 Hz, >250:1 at 75 MHz		>1,000,000:1 at 0 Hz, >250:1 at 150 MHz			
Analog Modulation						
Maximum Bandwidth (kHz)	500		500		500	500
Rise Time (10% to 90%) (nsec)	<700		<700		<700	<700
Fall Time (90% to 10%) (nsec)	<700		<700		<700	<700
Modulation Depth (extinction ratio)	>1,000,000:1		>1,000,000:1		>1,000,000:1	>1,000,000:1
Static Alignment Tolerances						
Beam Position from Reference <sup>5</sup> (mm)	<1		<1		<1	<1
Beam Angle <sup>5</sup> (mrad)	<5		<5		<5	<5
Beam Waist Position at Exit Window (mm)	n/a		n/a		n/a	n/a
Laser Safety Classification	3b		3b		3b	3b
ESD Protection <sup>6</sup>	Level 4		Level 4		Level 4	Level 4
Power Consumption (W)	Typical 5, Max. 13		Typical 5, Max. 13		Typical 5, Max. 13	Typical 5, Max. 13
Laser Head Baseplate Temp. (Max., °C)	50		50		50	50
Heat Dissipation of Laser Head <sup>7</sup> (W)	Typical 5, Max. 13		Typical 5, Max. 13		Typical 5, Max. 13	Typical 5, Max. 13
Ambient Temperature <sup>8</sup>						
Operating Condition <sup>9</sup> (°C)	10 to 50		10 to 50		10 to 50	10 to 50
Non-operating Condition (°C)	-20 to 60		-20 to 60		-20 to 60	-20 to 60
Shock Tolerance (g) (6 ms)	30		30		30	30

<sup>1</sup> Laser-to-laser tolerance. All LS versions ±2 nm. All LX versions with ±5 nm except 520LX with a 520 nm to 530 nm range, 640LX with 635 nm to 644 nm range and 660LX with 652 nm to 665 nm range.  
<sup>2</sup> Output power is variable in CW Mode from 1mW (1% for LX Models) to 110% of rated power. Specifications are valid for 100% power. For LS versions all residual laser emission at 808 nm pump light or fundamental <0.1 mW.  
<sup>3</sup> For LX versions the M<sup>2</sup> measured with ModeMaster with 90/10 clip levels.  
<sup>4</sup> For LS versions typical power-on delay 1 minute. For LX versions typical power-on delay 0.1 minutes.  
<sup>5</sup> See mechanical drawing for exit beam location.  
<sup>6</sup> Electro-Static Discharge Standard IEC 1000-4-2, 1995.  
<sup>7</sup> Typically 85% of heat load through the base plate. See Users Manual for more detail.  
<sup>8</sup> Non-Condensing. See User Manual for more detail.  
<sup>9</sup> For LS versions laser head baseplate temperature needs to be maintained at ≤40°C.

System Specifications	OBIS 458LX	OBIS 473LX	OBIS 488LX	OBIS 488LS
Wavelength <sup>1</sup> (nm)	458	473	488	488
Output Power <sup>2</sup> (mW)	75	75	50 150	20, 60, 80, 100
Spatial Mode	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>
M <sup>2</sup> (Beam Quality) <sup>3</sup>	≤1.2	≤1.2	≤1.2	≤1.1
Beam Asymmetry	≤1:1.2	≤1:1.2	≤1:1.2	≤1:1.1
Beam Diameter at 1/e <sup>2</sup> (mm)	0.8 ±0.1	0.8 ±0.1	0.8 ±0.1 0.6 ±0.1	0.7 ±0.05
Beam Divergence (mrad, full-angle)	<1.1	<1.1	<1.2	<1.2
Pointing Stability (μrad) (over 2 hours after warm-up and ±3°C)	<30	<30	<30	<30
Pointing Stability Over Temp. (μrad/°C)	<5	<5	<5	<5
RMS Noise (%) (20 Hz to 20 MHz)	≤0.05	≤0.05	≤0.05	≤0.25
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	<0.5	<0.5	<0.5	<1
Long-term Power Stability (%) (8 hrs., ±3°C)	<2	<2	<2	<2
Warm-up Time <sup>4</sup> (minutes) (from cold start)	<5	<5	<5	<5
Polarization Ratio	Minimum 100:1, Vertical ±5°			
Laser Drive Modes	CW, Analog Modulation, Digital Modulation and Computer Control			
Digital Modulation				
Maximum Bandwidth (MHz)	150	150	150	0.05
Rise Time (10% to 90%)(nsec)	<2	<2	<2	<18,000
Fall Time (90% to 10%)(nsec)	<2	<2	<2.5	<2000
Modulation Depth (extinction ratio)	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz			>1,000,000:1 at 0 Hz to 50 kHz
Analog Modulation				
Maximum Bandwidth (kHz)	500	500	500	100
Rise Time (10% to 90%)(nsec)	<700	<700	<700	<3000
Fall Time (90% to 10%)(nsec)	<700	<700	<700	<3000
Modulation Depth (extinction ratio)	>1,000,000:1	>1,000,000:1	>1,000,000:1	>50:1
Static Alignment Tolerances				
Beam Position from Reference <sup>5</sup> (mm)	<1	<1	<1	<0.5
Beam Angle <sup>5</sup> (mrad)	<5	<5	<5	<2.5
Beam Waist Position at Exit Window (mm)	n/a	n/a	n/a	±200
Laser Safety Classification	3b	3b	3b	3b
ESD Protection <sup>6</sup>	Level 4	Level 4	Level 4	Level 4
Power Consumption (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13	Typical 8, Max. 12
Laser Head Baseplate Temp. (Max., °C)	50	50	50	40
Heat Dissipation of Laser Head <sup>7</sup> (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13	Typical 8, Max. 12
Ambient Temperature <sup>8</sup>				
Operating Condition <sup>9</sup> (°C)	10 to 50	10 to 50	10 to 50	15 to 40
Non-operating Condition (°C)	-20 to 60	-20 to 60	-20 to 60	-20 to 60
Shock Tolerance (g)(6 ms)	30	30	30	30

<sup>1</sup> Laser-to-laser tolerance. All LS versions ±2 nm. All LX versions with ±5 nm except 520LX with a 520 nm to 530 nm range, 640LX with 635 nm to 644 nm range and 660LX with 652 nm to 665 nm range.  
<sup>2</sup> Output power is variable in CW Mode from 1mW (1% for LX Models) to 100% of rated power. Specifications are valid for 100% power. For LS versions all residual laser emission at 808 nm pump light or fundamental <0.1 mW.  
<sup>3</sup> For LX versions the M<sup>2</sup> measured with ModeMaster with 90/10 clip levels.  
<sup>4</sup> For LS versions typical power-on delay 1 minute. For LX versions typical power-on delay 0.1 minutes.  
<sup>5</sup> See mechanical drawing for exit beam location.  
<sup>6</sup> Electro-Static Discharge Standard IEC 1000-4-2, 1995.  
<sup>7</sup> Typically 85% of heat load through the base plate. See Users Manual for more detail.  
<sup>8</sup> Non-Condensing. See User Manual for more detail.  
<sup>9</sup> For LS versions laser head baseplate temperature needs to be maintained at ≤40°C.

System Specifications	OBIS 505LX	OBIS 514LS	OBIS 514LX	OBIS 520LX
Wavelength <sup>1</sup> (nm)	505	514	514	520
Output Power <sup>2</sup> (mW)	50	20	40	40
Spatial Mode	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>
M <sup>2</sup> (Beam Quality) <sup>3</sup>	≤1.2	≤1.1	≤1.2	≤1.2
Beam Asymmetry	≤1:1.2	≤1:1.1	≤1:1.2	≤1:1.2
Beam Diameter at 1/e <sup>2</sup> (mm)	0.8 ±0.1	0.7 ±0.05	0.6 ±0.1	0.6 ±0.1
Beam Divergence (mrad, full-angle)	<1.2	<1.2	<1.1	<1.1
Pointing Stability (μrad) (over 2 hours after warm-up and ±3°C)	<30	<30	<30	<30
Pointing Stability Over Temp. (μrad/°C)	<5	<5	<5	<5
RMS Noise (%) (20 Hz to 20 MHz)	≤0.05	≤0.25	≤0.05	≤0.05
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	<0.5	<1	<1	<1
Long-term Power Stability (%) (8 hrs., ±3°C)	<2	<2	<2	<2
Warm-up Time <sup>4</sup> (minutes) (from cold start)	<5	<5	<5	<5
Polarization Ratio	Minimum 100:1, Vertical ±5°			
Laser Drive Modes	CW, Analog Modulation, Digital Modulation and Computer Control			
Digital Modulation				
Maximum Bandwidth (MHz)	150	0.05	150	150
Rise Time (10% to 90%)(nsec)	<2	<18,000	<2	<2
Fall Time (90% to 10%)(nsec)	<2.5	<2000	<2	<2
Modulation Depth (extinction ratio)	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>1,000,000:1 at 0 Hz to 50 kHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz
Analog Modulation				
Maximum Bandwidth (kHz)	500	100	500	500
Rise Time (10% to 90%)(nsec)	<700	<3000	<700	<700
Fall Time (90% to 10%)(nsec)	<700	<3000	<700	<700
Modulation Depth (extinction ratio)	>1,000,000:1	>50:1	>1,000,000:1	>1,000,000:1
Static Alignment Tolerances				
Beam Position from Reference <sup>5</sup> (mm)	<1	<0.5	<1	<1
Beam Angle <sup>5</sup> (mrad)	<5	<2.5	<5	<5
Beam Waist Position at Exit Window (mm)	n/a	±200	n/a	n/a
Laser Safety Classification	3b	3b	3b	3b
ESD Protection <sup>6</sup>	Level 4	Level 4	Level 4	Level 4
Power Consumption (W)	Typical 5, Max. 13	Typical 8, Max. 12	Typical 5, Max. 13	Typical 5, Max. 13
Laser Head Baseplate Temp. (Max., °C)	50	40	50	50
Heat Dissipation of Laser Head <sup>7</sup> (W)	Typical 5, Max. 13	Typical 8, Max. 12	Typical 5, Max. 13	Typical 5, Max. 13
Ambient Temperature <sup>8</sup>				
Operating Condition <sup>9</sup> (°C)	10 to 50	15 to 40	10 to 50	10 to 50
Non-operating Condition (°C)	-20 to 60	-20 to 60	-20 to 60	-20 to 60
Shock Tolerance (g)(6 ms)	30	30	30	30

<sup>1</sup> Laser-to-laser tolerance. All LS versions ±2 nm. All LX versions with ±5 nm except 520LX with a 520 nm to 530 nm range, 640LX with 635 nm to 644 nm range and 660LX with 652 nm to 665 nm range.  
<sup>2</sup> Output power is variable in CW Mode from 1mW (1% for LX Models) to 110% of rated power. Specifications are valid for 100% power. For LS versions all residual laser emission at 808 nm pump/10 or fundamental <0.1 mW.  
<sup>3</sup> For LX versions the M<sup>2</sup> measured with ModeMaster with 90/10 clip levels.  
<sup>4</sup> For LS versions typical power-on delay 1 minute. For LX versions typical power-on delay 0.1 minutes.  
<sup>5</sup> See mechanical drawing for exit beam location.  
<sup>6</sup> Electro-Static Discharge Standard IEC 1000-4-2, 1995.  
<sup>7</sup> Typically 85% of heat load through the base plate. See Users Manual for more detail.  
<sup>8</sup> Non-Condensing. See User Manual for more detail.  
<sup>9</sup> For LS versions laser head baseplate temperature needs to be maintained at ≤40°C.

System Specifications	OBIS 532LS	OBIS 552LS	OBIS 561LS
Wavelength <sup>1</sup> (nm)	532	552	561
Output Power <sup>2</sup> (mW)	20, 50, 80, 100	20, 60, 80, 100	20, 50, 80, 100
Spatial Mode	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>
M <sup>2</sup> (Beam Quality) <sup>3</sup>	≤1.1	≤1.1	≤1.1
Beam Asymmetry	≤1:1.1	≤1:1.1	≤1:1.1
Beam Diameter at 1/e <sup>2</sup> (mm)	0.7 ±0.05	0.7 ±0.05	0.7 ±0.05
Beam Divergence (mrad, full-angle)	<1.2	<1.2	<1.2
Pointing Stability (μrad) (over 2 hours after warm-up and ±3°C)	<30	<30	<30
Pointing Stability Over Temp. (μrad/°C)	<5	<5	<5
RMS Noise (%) (20 Hz to 20 MHz)	≤0.25	≤0.25	≤0.25
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	<1	<1	<1
Long-term Power Stability (%) (8 hrs., ±3°C)	<2	<2	<2
Warm-up Time <sup>4</sup> (minutes) (from cold start)	<5	<5	<5
Polarization Ratio	Minimum 100:1, Vertical ±5°		
Laser Drive Modes	CW, Analog Modulation, Digital Modulation and Computer Control		
Digital Modulation			
Maximum Bandwidth (MHz)	0.05	0.05	0.05
Rise Time (10% to 90%) (nsec)	<18,000	<18,000	<18,000
Fall Time (90% to 10%) (nsec)	<2000	<2000	<2000
Modulation Depth (extinction ratio)	>1,000,000:1 at 0 Hz to 50 kHz		
Analog Modulation			
Maximum Bandwidth (kHz)	100	100	100
Rise Time (10% to 90%) (nsec)	<3000	<3000	<3000
Fall Time (90% to 10%) (nsec)	<3000	<3000	<3000
Modulation Depth (extinction ratio)	>50:1	>50:1	>50:1
Static Alignment Tolerances			
Beam Position from Reference <sup>5</sup> (mm)	<0.5	<0.5	<0.5
Beam Angle <sup>5</sup> (mrad)	<2.5	<2.5	<2.5
Beam Waist Position at Exit Window (mm)	±200	±200	±200
Laser Safety Classification	3b	3b	3b
ESD Protection <sup>6</sup>	Level 4	Level 4	Level 4
Power Consumption (W)	Typical 8, Max. 12	Typical 8, Max. 12	Typical 8, Max. 12
Laser Head Baseplate Temp. (Max., °C)	40	40	40
Heat Dissipation of Laser Head <sup>7</sup> (W)	Typical 8, Max. 12	Typical 8, Max. 12	Typical 8, Max. 12
Ambient Temperature <sup>8</sup>			
Operating Condition <sup>9</sup> (°C)	15 to 40	15 to 40	15 to 40
Non-operating Condition (°C)	-20 to 60	-20 to 60	-20 to 60
Shock Tolerance (g)(6 ms)	30	30	30

<sup>1</sup> Laser-to-laser tolerance. All LS versions ±2 nm. All LX versions with ±5 nm except 520LX with a 520 nm to 530 nm range, 640LX with 635 nm to 644 nm range and 660LX with 652 nm to 665 nm range.

<sup>2</sup> Output power is variable in CW Mode from 1mW (1% for LX Models) to 100% of rated power. Specifications are valid for 100% power. For LS versions all residual laser emission at 808 nm pump light or fundamental <0.1 mW.

<sup>3</sup> For LX versions the M<sup>2</sup> measured with ModeMaster with 90/10 clip levels.

<sup>4</sup> For LS versions typical power-on delay 1 minute. For LX versions typical power-on delay 0.1 minutes.

<sup>5</sup> See mechanical drawing for exit beam location.

<sup>6</sup> Electro-Static Discharge Standard IEC 1000-4-2, 1995.

<sup>7</sup> Typically 85% of heat load through the base plate. See Users Manual for more detail.

<sup>8</sup> Non-Condensing. See User Manual for more detail.

<sup>9</sup> For LS versions laser head baseplate temperature needs to be maintained at ≤40°C.

System Specifications	OBIS 637LX	OBIS 640LX	OBIS 647LX	OBIS 660LX
Wavelength <sup>1</sup> (nm)	637	640	647	660
Output Power <sup>2</sup> (mW)	140	40, 100	120	100
Spatial Mode	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>
M <sup>2</sup> (Beam Quality) <sup>3</sup>	≤1.2	≤1.2	≤1.2	≤1.2
Beam Asymmetry	≤1:1.2	≤1:1.2	≤1:1.2	≤1:1.2
Beam Diameter at 1/e <sup>2</sup> (mm)	0.7 ±0.1	0.8 ±0.1	0.8 ±0.1	0.9 ±0.1
Beam Divergence (mrad, full-angle)	<1.3	<1.3	<1.3	<1.3
Pointing Stability (μrad) (over 2 hours after warm-up and ±3°C)	<30	<30	<30	<30
Pointing Stability Over Temp. (μrad/°C)	<5	<5	<5	<5
RMS Noise (%) (20 Hz to 20 MHz)	≤0.05	≤0.05	≤0.05	≤0.05
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	<0.5	<0.5	<0.5	<0.5
Long-term Power Stability (%) (8 hrs., ±3°C)	<2	<2	<2	<2
Warm-up Time <sup>4</sup> (minutes) (from cold start)	<5	<5	<5	<5
Polarization Ratio	Minimum 100:1, Vertical ±5°			
Laser Drive Modes	CW, Analog Modulation, Digital Modulation and Computer Control			
Digital Modulation				
Maximum Bandwidth (MHz)	150	150	150	150
Rise Time (10% to 90%) (nsec)	<2	<2	<2	<2
Fall Time (90% to 10%) (nsec)	<2	<2	<2	<2
Modulation Depth (extinction ratio)	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz			
Analog Modulation				
Maximum Bandwidth (kHz)	300	500	500	500
Rise Time (10% to 90%) (nsec)	<1200	<700	<700	<700
Fall Time (90% to 10%) (nsec)	<800	<700	<700	<700
Modulation Depth (extinction ratio)	>1,000,000:1	>1,000,000:1	>1,000,000:1	>1,000,000:1
Static Alignment Tolerances				
Beam Position from Reference <sup>5</sup> (mm)	<1	<1	<1	<1
Beam Angle <sup>5</sup> (mrad)	<5	<5	<5	<5
Beam Waist Position at Exit Window (mm)	n/a	n/a	n/a	n/a
Laser Safety Classification	3b	3b	3b	3b
ESD Protection <sup>6</sup>	Level 4	Level 4	Level 4	Level 4
Power Consumption (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13
Laser Head Baseplate Temp. (Max., °C)	50	50	50	50
Heat Dissipation of Laser Head <sup>7</sup> (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13
Ambient Temperature <sup>8</sup>				
Operating Condition <sup>9</sup> (°C)	10 to 50	10 to 50	10 to 50	10 to 50
Non-operating Condition (°C)	-20 to 60	-20 to 60	-20 to 60	-20 to 60
Shock Tolerance (g) (6 ms)	30	30	30	30

<sup>1</sup> Laser-to-laser tolerance. All LS versions ±2 nm. All LX versions with ±5 nm except 520LX with a 520 nm to 530 nm range, 640LX with 635 nm to 644 nm range and 660LX with 652 nm to 665 nm range.

<sup>2</sup> Output power is variable in CW Mode from 1mW (1% for LX Models) to 110% of rated power. Specifications are valid for 100% power.

For LS versions all residual laser emission at 808 nm pumplight or fundamental <0.1 mW.

<sup>3</sup> For LX versions the M<sup>2</sup> measured with ModeMaster with 90/10 clip levels.

<sup>4</sup> For LS versions typical power-on delay 1 minute. For LX versions typical power-on delay 0.1 minutes.

<sup>5</sup> See mechanical drawing for exit beam location.

<sup>6</sup> Electro-Static Discharge Standard IEC 1000-4-2, 1995.

<sup>7</sup> Typically 85% of heat load through the base plate. See Users Manual for more detail.

<sup>8</sup> Non-Condensing. See User Manual for more detail.

<sup>9</sup> For LS versions laser head baseplate temperature needs to be maintained at ≤40°C.

System Specifications	OBIS 685LX	OBIS 730LX	OBIS 785LX
Wavelength <sup>1</sup> (nm)	685	730	785
Output Power <sup>2</sup> (mW)	40	30	50
Spatial Mode	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>
M <sup>2</sup> (Beam Quality) <sup>3</sup>	≤1.2	≤1.2	≤1.2
Beam Asymmetry	≤1:1.2	≤1:1.2	≤1:1.2
Beam Diameter at 1/e <sup>2</sup> (mm)	0.8 ±0.1	0.8 ±0.1	0.7 ±0.1
Beam Divergence (mrad, full-angle)	<1.3	<1.3	<1.7
Pointing Stability (μrad) (over 2 hours after warm-up and ±3°C)	<30	<30	<30
Pointing Stability Over Temp. (μrad/°C)	<5	<5	<5
RMS Noise (%) (20 Hz to 20 MHz)	≤0.05	≤0.05	≤0.05
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	<0.5	<0.5	<0.5
Long-term Power Stability (%) (8 hrs., ±3°C)	<2	<2	<2
Warm-up Time <sup>4</sup> (minutes) (from cold start)	<5	<5	<5
Polarization Ratio	Minimum 100:1, Vertical ±5°	Minimum 100:1, Vertical ±5°	Minimum 25:1, Vertical ±15°
Laser Drive Modes	CW, Analog Modulation, Digital Modulation and Computer Control		
Digital Modulation			
Maximum Bandwidth (MHz)	150	150	100
Rise Time (10% to 90%)(nsec)	<2	<2	<4
Fall Time (90% to 10%)(nsec)	<2	<2	<4
Modulation Depth (extinction ratio)	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>700,000:1 at 0 Hz, >250:1 at 100 MHz
Analog Modulation			
Maximum Bandwidth (kHz)	500	500	450
Rise Time (10% to 90%)(nsec)	<700	<700	<800
Fall Time (90% to 10%)(nsec)	<700	<700	<800
Modulation Depth (extinction ratio)	>1,000,000:1	>1,000,000:1	>700,000:1
Static Alignment Tolerances			
Beam Position from Reference <sup>5</sup> (mm)	<1	<1	<1
Beam Angle <sup>5</sup> (mrad)	<5	<5	<5
Beam Waist Position at Exit Window (mm)	n/a	n/a	n/a
Laser Safety Classification	3b	3b	3b
ESD Protection <sup>6</sup>	Level 4	Level 4	Level 4
Power Consumption (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13
Laser Head Baseplate Temp. (Max., °C)	50	50	50
Heat Dissipation of Laser Head <sup>7</sup> (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13
Ambient Temperature <sup>8</sup>			
Operating Condition <sup>9</sup> (°C)	10 to 50	10 to 50	10 to 50
Non-operating Condition (°C)	-20 to 60	-20 to 60	-20 to 60
Shock Tolerance (g)(6 ms)	30	30	30

<sup>1</sup> Laser-to-laser tolerance. All LS versions ±2 nm. All LX versions with ±5 nm except 520LX with a 520 nm to 530 nm range, 640LX with 635 nm to 644 nm range and 660LX with 652 nm to 665 nm range.

<sup>2</sup> Output power is variable in CW Mode from 1mW (1% for LX Models) to 110% of rated power. Specifications are valid for 100% power. For LS versions all residual laser emission at 808 nm pump light or fundamental <0.1 mW.

<sup>3</sup> For LX versions the M<sup>2</sup> measured with ModeMaster with 90/10 clip levels.

<sup>4</sup> For LS versions typical power-on delay 1 minute. For LX versions typical power-on delay 0.1 minutes.

<sup>5</sup> See mechanical drawing for exit beam location.

<sup>6</sup> Electro-Static Discharge Standard IEC 1000-4-2, 1995.

<sup>7</sup> Typically 85% of heat load through the base plate. See Users Manual for more detail.

<sup>8</sup> Non-Condensing. See User Manual for more detail.

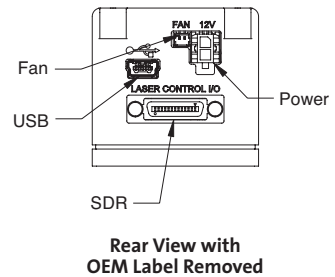
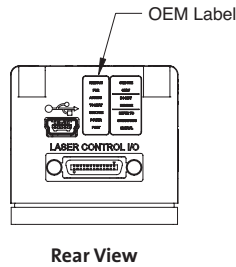
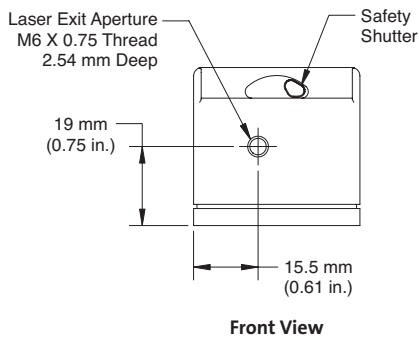
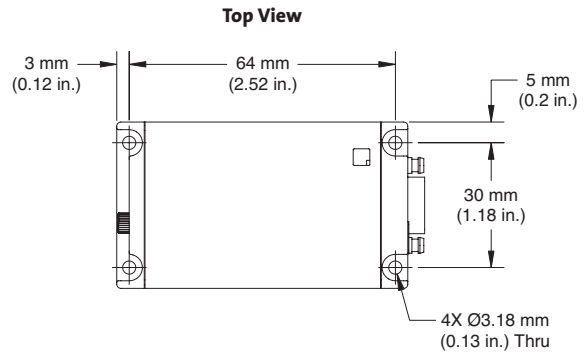
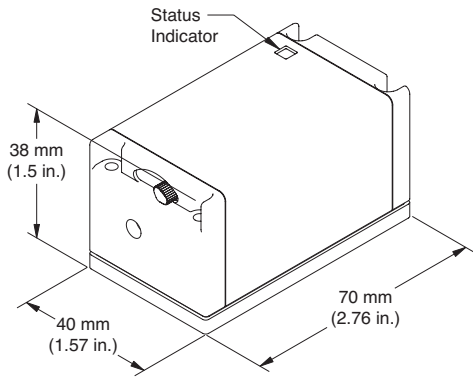
<sup>9</sup> For LS versions laser head baseplate temperature needs to be maintained at ≤40°C.

**Utility and Environmental Requirements**

Operating Voltage <sup>1</sup> (VDC)	12 ±2
Dimensions (L x W x H)	
Laser	70 x 40 x 38 mm (2.75 x 1.57 x 1.5 in.)
OBIS Remote (optional)	105 x 68 x 36 mm (4.13 x 2.68 x 1.42 in.)
DC Power Supply (optional)	105 x 42 x 33 mm (4.13 x 1.65 x 1.3 in.)
Cable, Laser to OBIS Remote (optional)	1 m (3.28 ft.) (3 meter and 0.3 meter sold separately)
Weights	
Laser	0.16 kg (0.35 lbs.)
OBIS Remote (optional)	0.24 kg (0.53 lbs.)
DC Power Supply (optional)	0.36 kg (0.79 lbs.)
Cable, Laser to OBIS Remote (optional)	0.1 kg (0.22 lbs.) for 1 meter

<sup>1</sup> If user supplied, the DC power supply has to meet the following requirements: power >20W; ripple <5% peak-to-peak; line regulation <0.5%.

**Mechanical Specifications**





# OBIS FP

## Fiber Pigtailed Lasers for Plug-and-Play Simplicity Across the Spectrum

Fiber pigtailed lasers that provide users the simplicity of a plug-and-play platform, utilizing a wide range of wavelengths from the UV to the near IR. Fiber is complete with a FC/APC connector.

OBIS FP lasers are based off the OBIS laser platform, offering plug-and-play simplicity that allows for faster integration thereby reducing the cost of integration and time to market.

OBIS FP lasers achieve superior performance and reliability with hands-free operation. OBIS FP lasers combine single-mode polarization-maintaining fiber with an FC/APC connector for a high-quality low-noise laser beam output. The OBIS FP also utilizes proprietary fiber technology to provide superior lifetimes and a permanent fiber attachment for a guaranteed power over time.



**Superior Reliability & Performance**

### **OBIS FP Features:**

- **Compact and identical foot print, dimensions, SM/PM fiber with FC/APC, interface, power supply, protocol**
- **Integrated control electronics**
- **OEM and end user versions**
- **Superior beam quality from single mode polarization maintaining fiber**
- **Analog and digital modulation**
- **USB with complete I/O and controls**
- **Superior reliability**
- **FC/APC connector**

### **OBIS FP Applications:**

- **Confocal Microscopy**
- **DNA Sequencing**
- **Flow Cytometry**
- **Medical Imaging and Instrumentation**

# OBIS FP

## Fiber Pigtailed Lasers for Plug-and-Play Simplicity Across the Spectrum

System Specifications	OBIS FP 405LX	OBIS FP 445LX
Wavelength <sup>1</sup> (nm)	405	445
Output Power <sup>2</sup> (mW)	50, 100	45
Output from Fiber	FC/APC; 8° angled <sup>8</sup>	FC/APC; 8° angled <sup>8</sup>
Fiber Cable Type	3 mm Mono-Coil	3 mm Mono-Coil
Fiber Cable Length (m)(minimum)	1	1
Fiber Numerical Aperture (NA)(1/e <sup>2</sup> )	0.045	0.045
Fiber Core Diameter (μm)(typical)	3.5	3.5
Spatial Mode	TEM <sub>00</sub>	TEM <sub>00</sub>
M <sup>2</sup> (Beam Quality) <sup>3</sup>	≤1.1	≤1.1
Beam Asymmetry	≤1:1.1	≤1:1.1
RMS Noise (%) (20 Hz to 20 MHz)	≤0.2	≤0.2
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	≤2	≤2
Long-term Power Stability (%) (8 hrs., ±3°C)	<2	<2
Long-term Output Power Average (%/hrs.)	≤5/1000	≤5/1000
Warm-up Time <sup>4</sup> (minutes)(from cold start)	<5	<5
Polarization Ratio	Minimum 100:1	Minimum 100:1
Laser Drive Modes	CW, Analog Modulation, Digital Modulation and Computer Control	
Digital Modulation		
Maximum Bandwidth (MHz)	150	150
Rise Time (10% to 90%)(nsec)	<2	<2
Fall Time (90% to 10%)(nsec)	<2	<2
Modulation Depth (extinction ratio)	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	
Analog Modulation		
Maximum Bandwidth (kHz)	500	500
Rise Time (10% to 90%)(nsec)	<700	<700
Fall Time (10% to 90%)(nsec)	<700	<700
Modulation Depth (extinction ratio)	>1,000,000:1	>1,000,000:1
Laser Safety Classification	3b	3b
ESD Protection <sup>5</sup>	Level 4	Level 4
Power Consumption (W)	Typical 5, Max. 13	Typical 5, Max. 13
Laser Head Baseplate Temperature (Max., °C)	40	40
Heat Dissipation of Laser Head <sup>6</sup> (W)	Typical 5, Max. 13	Typical 5, Max. 13
Ambient Temperature <sup>7</sup>		
Operating Condition (°C)	10 to 40	10 to 40
Non-operating Condition (°C)	-20 to +60	-20 to +60
Shock Tolerance (g)(6 ms)	30	30

<sup>1</sup> Laser-to-laser tolerance. All LS versions ±2 nm. All LX versions with ±5 nm except 520LX with a 520 nm to 530 nm range, 640LX with 635 nm to 644 nm range and 660LX with 652 nm to 665 nm range.

<sup>2</sup> Output power is variable in CW Mode from 1 mW (1% for LX Models) to 110% of rated power. Specifications are valid for 100% power.

<sup>3</sup> M<sup>2</sup> measured with ModeMaster with 90/10 clip levels.

<sup>4</sup> Typical power-on delay 0.1 minutes.

<sup>5</sup> Electro-Static Discharge Standard IEC 1000-4-2, 1995.

<sup>6</sup> Typically 85% of heat load through the base plate. See Users Manual for more detail.

<sup>7</sup> Non-Condensing. See User Manual for more detail.

<sup>8</sup> Fiber FC/APC connector output not compatible for patchcord-to-patchcord connection.

# OBIS FP

## Fiber Pigtailed Lasers for Plug-and-Play Simplicity Across the Spectrum

System Specifications	OBIS FP 473LX	OBIS FP 488LX	OBIS FP 488LS
Wavelength <sup>1</sup> (nm)	473	488	488
Output Power <sup>2</sup> (mW)	50	30, 100	15, 40, 60, 80
Output from Fiber	FC/APC; 8° angled <sup>8</sup>	FC/APC; 8° angled <sup>8</sup>	FC/APC; 8° angled
Fiber Cable Type	3 mm Mono-Coil	3 mm Mono-Coil	5 mm Protective Tubing
Fiber Cable Length (m)(minimum)	1	1	1
Fiber Numerical Aperture (NA)(1/e <sup>2</sup> )	0.045	0.045	0.1
Fiber Core Diameter (μm)(typical)	3.5	3.5	4
Spatial Mode	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>
M <sup>2</sup> (Beam Quality) <sup>3</sup>	≤1.1	≤1.1	≤1.1
Beam Asymmetry	≤1:1.1	≤1:1.1	≤1:1.1
RMS Noise (%) (20 Hz to 20 MHz)	≤0.2	≤0.2	≤0.25
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	≤2	≤2	≤1
Long-term Power Stability (%) (8 hrs., ±3°C)	<2	<2	<2
Long-term Output Power Average (%/hrs.)	≤4/1000	≤4/1000	-
Warm-up Time <sup>4</sup> (minutes)(from cold start)	<5	<5	<5
Polarization Ratio	Minimum 100:1	Minimum 100:1	Minimum 100:1
Laser Drive Modes	CW, Analog Modulation, Digital Modulation and Computer Control		
Digital Modulation			
Maximum Bandwidth (MHz)	150	150	0.05
Rise Time (10% to 90%)(nsec)	<2	<2	<18,000
Fall Time (90% to 10%)(nsec)	<2	<2.5	<2000
Modulation Depth (extinction ratio)		>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>1,000,000:1 at 0 Hz to 50 kHz
Analog Modulation			
Maximum Bandwidth (kHz)	500	500	100
Rise Time (10% to 90%)(nsec)	<700	<700	<3000
Fall Time (10% to 90%)(nsec)	<700	<700	<3000
Modulation Depth (extinction ratio)	>1,000,000:1	>1,000,000:1	>50:1
Laser Safety Classification	3b	3b	3b
ESD Protection <sup>5</sup>	Level 4	Level 4	Level 4
Power Consumption (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 8, Max. 12
Laser Head Baseplate Temperature (Max., °C)	40	40	40
Heat Dissipation of Laser Head <sup>6</sup> (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 8, Max. 12
Ambient Temperature <sup>7</sup>			
Operating Condition (°C)	10 to 40	10 to 40	15 to 40
Non-operating Condition (°C)	-20 to +60	-20 to +60	-20 to +60
Shock Tolerance (g)(6 ms)	30	30	30

<sup>1</sup> Laser-to-laser tolerance. All LS versions ±2 nm. All LX versions with ±5 nm except 520LX with a 520 nm to 530 nm range, 640LX with 635 nm to 644 nm range and 660LX with 652 nm to 665 nm range.

<sup>2</sup> Output power is variable in CW Mode from 1 mW (1% for LX Models) to 110% of rated power. Specifications are valid for 100% power.

<sup>3</sup> M<sup>2</sup> measured with ModeMaster with 90/10 clip levels.

<sup>4</sup> Typical power-on delay 0.1 minutes.

<sup>5</sup> Electro-Static Discharge Standard IEC 1000-4-2, 1995.

<sup>6</sup> Typically 85% of heat load through the base plate. See Users Manual for more detail.

<sup>7</sup> Non-Condensing. See User Manual for more detail.

<sup>8</sup> Fiber FC/APC connector output not compatible for patchcord-to-patchcord connection.

# OBIS FP

Fiber Pigtailed Lasers for Plug-and-Play Simplicity Across the Spectrum

System Specifications	OBIS FP 514LS	OBIS FP 520LX
Wavelength <sup>1</sup> (nm)	514	520
Output Power <sup>2</sup> (mW)	15	20
Output from Fiber	FC/APC; 8° angled	FC/APC; 8° angled <sup>8</sup>
Fiber Cable Type	5 mm Protective Tubing	3 mm Mono-Coil
Fiber Cable Length (m)(minimum)	1	1
Fiber Numerical Aperture (NA)(1/e <sup>2</sup> )	0.1	0.09
Fiber Core Diameter (μm)(typical)	4	4.5
Spatial Mode	TEM <sub>00</sub>	TEM <sub>00</sub>
M <sup>2</sup> (Beam Quality) <sup>3</sup>	≤1.1	≤1.1
Beam Asymmetry	≤1:1.1	≤1:1.1
RMS Noise (%)(20 Hz to 20 MHz)	≤0.2	≤0.25
Peak-to-Peak Noise (%)(20 Hz to 20 kHz)	≤1	≤2
Long-term Power Stability (%)(8 hrs., ±3°C)	<2	<2
Long-term Output Power Average (%/hrs.)	-	≤3/1000
Warm-up Time <sup>4</sup> (minutes)(from cold start)	<5	<5
Polarization Ratio	Minimum 100:1	Minimum 100:1
Laser Drive Modes	CW, Analog Modulation, Digital Modulation and Computer Control	
Digital Modulation		
Maximum Bandwidth (MHz)	0.05	150
Rise Time (10% to 90%)(nsec)	<18,000	<2
Fall Time (90% to 10%)(nsec)	<2000	<2
Modulation Depth (extinction ratio)	>1,000,000:1 at 0 Hz to 50 kHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz
Analog Modulation		
Maximum Bandwidth (kHz)	100	500
Rise Time (10% to 90%)(nsec)	<3000	<700
Fall Time (10% to 90%)(nsec)	<3000	<700
Modulation Depth (extinction ratio)	>50:1	>1,000,000:1
Laser Safety Classification	3b	3b
ESD Protection <sup>5</sup>	Level 4	Level 4
Power Consumption (W)	Typical 8, Max. 12	Typical 5, Max. 13
Laser Head Baseplate Temperature (Max., °C)	40	40
Heat Dissipation of Laser Head <sup>6</sup> (W)	Typical 8, Max. 12	Typical 5, Max. 13
Ambient Temperature <sup>7</sup>		
Operating Condition (°C)	15 to 40	10 to 40
Non-operating Condition (°C)	-20 to +60	-20 to +60
Shock Tolerance (g)(6 ms)	30	30

<sup>1</sup> Laser-to-laser tolerance. All LS versions ±2 nm. All LX versions with ±5 nm except 520LX with a 520 nm to 530 nm range, 640LX with 635 nm to 644 nm range and 660LX with 652 nm to 665 nm range.

<sup>2</sup> Output power is variable in CW Mode from 1 mW (1% for LX Models) to 110% of rated power. Specifications are valid for 100% power.

<sup>3</sup> M<sup>2</sup> measured with ModeMaster with 90/10 clip levels.

<sup>4</sup> Typical power-on delay 0.1 minutes.

<sup>5</sup> Electro-Static Discharge Standard IEC 1000-4-2, 1995.

<sup>6</sup> Typically 85% of heat load through the base plate. See Users Manual for more detail.

<sup>7</sup> Non-Condensing. See User Manual for more detail.

<sup>8</sup> Fiber FC/APC connector output not compatible for patchcord-to-patchcord connection.

# OBIS FP

## Fiber Pigtailed Lasers for Plug-and-Play Simplicity Across the Spectrum

System Specifications	OBIS FP 532LS	OBIS FP 552LS	OBIS FP 561LS
Wavelength <sup>1</sup> (nm)	532	552	561
Output Power <sup>2</sup> (mW)	20, 40, 60, 80	15, 40, 60, 80	40, 60, 80
Output from Fiber	FC/APC; 8° angled	FC/APC; 8° angled	FC/APC; 8° angled
Fiber Cable Type	5 mm Protective Tubing	5 mm Protective Tubing	5 mm Protective Tubing
Fiber Cable Length (m)(minimum)	1	1	1
Fiber Numerical Aperture (NA)(1/e <sup>2</sup> )	0.1	0.1	0.1
Fiber Core Diameter (μm)(typical)	4	4	4
Spatial Mode	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>
M <sup>2</sup> (Beam Quality) <sup>3</sup>	≤1.1	≤1.1	≤1.1
Beam Asymmetry	≤1:1.1	≤1:1.1	≤1:1.1
RMS Noise (%)(20 Hz to 20 MHz)	≤0.25	≤0.25	≤0.25
Peak-to-Peak Noise (%)(20 Hz to 20 kHz)	≤1	≤1	≤1
Long-term Power Stability (%)(8 hrs., ±3°C)	<2	<2	<2
Long-term Output Power Average (%/hrs.)	-	-	-
Warm-up Time <sup>4</sup> (minutes)(from Cold Start)	<5	<5	<5
Polarization Ratio	Minimum 100:1	Minimum 100:1	Minimum 100:1
Laser Drive Modes	CW, Analog Modulation, Digital Modulation and Computer Control		
Digital Modulation			
Maximum Bandwidth (MHz)	0.05	0.05	0.05
Rise Time (10% to 90%)(nsec)	<18,000	<18,000	<18,000
Fall Time (90% to 10%)(nsec)	<2000	<2000	<2000
Modulation Depth (extinction ratio)		>1,000,000:1 at 0 Hz to 50 kHz	<2000
Analog Modulation			
Maximum Bandwidth (kHz)	100	100	100
Rise Time (10% to 90%)(nsec)	<3000	<3000	<3000
Fall Time (10% to 90%)(nsec)	<3000	<3000	<3000
Modulation Depth (extinction ratio)	>50:1	>50:1	>50:1
Laser Safety Classification	3b	3b	3b
ESD Protection <sup>5</sup>	Level 4	Level 4	Level 4
Power Consumption (W)	Typical 8, Max. 12	Typical 8, Max. 12	Typical 8, Max. 12
Laser Head Baseplate Temperature (Max., °C)	40	40	40
Heat Dissipation of Laser Head <sup>6</sup> (W)	Typical 8, Max. 12	Typical 8, Max. 12	Typical 8, Max. 12
Ambient Temperature <sup>7</sup>			
Operating Condition (°C)	15 to 40	15 to 40	15 to 40
Non-operating Condition (°C)	-20 to +60	-20 to +60	-20 to +60
Shock Tolerance (g)(6 ms)	30	30	30

<sup>1</sup> Laser-to-laser tolerance. All LS versions ±2 nm. All LX versions with ±5 nm except 520LX with a 520 nm to 530 nm range, 640LX with 635 nm to 644 nm range and 660LX with 652 nm to 665 nm range.

<sup>2</sup> Output power is variable in CW Mode from 1 mW (1% for LX Models) to 100% of rated power. Specifications are valid for 100% power.

<sup>3</sup> M<sup>2</sup> measured with ModeMaster with 90/10 clip levels.

<sup>4</sup> Typical power-on delay 0.1 minutes.

<sup>5</sup> Electro-Static Discharge Standard IEC 1000-4-2, 1995.

<sup>6</sup> Typically 85% of heat load through the base plate. See Users Manual for more detail.

<sup>7</sup> Non-Condensing. See User Manual for more detail.

# OBIS FP

## Fiber Pigtailed Lasers for Plug-and-Play Simplicity Across the Spectrum

System Specifications	OBIS FP 637LX	OBIS FP 640LX	OBIS FP 647LX	OBIS FP 660LX
Wavelength <sup>1</sup> (nm)	637	640	647	660
Output Power <sup>2</sup> (mW)	100	75	100	75
Output from Fiber	FC/APC; 8° angled <sup>8</sup>	FC/APC; 8° angled <sup>8</sup>	FC/APC; 8° angled <sup>8</sup>	FC/APC; 8° angled <sup>8</sup>
Fiber Cable Type	3 mm Mono-Coil	3 mm Mono-Coil	3 mm Mono-Coil	3 mm Mono-Coil
Fiber Cable Length (m)(minimum)	1	1	1	1
Fiber Numerical Aperture (NA)(1/e <sup>2</sup> )	0.09	0.09	0.09	0.09
Fiber Core Diameter (μm)(typical)	4.5	4.5	4.5	4.5
Spatial Mode	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>
M <sup>2</sup> (Beam Quality) <sup>3</sup>	≤1.1	≤1.1	≤1.1	≤1.1
Beam Asymmetry	≤1:1.1	≤1:1.1	≤1:1.1	≤1:1.1
RMS Noise (%) (20 Hz to 20 MHz)	≤0.2	≤0.2	≤0.2	≤0.2
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	≤2	≤2	≤2	≤2
Long-term Power Stability (%) (8 hrs., ±3°C)	<2	<2	<2	<2
Long-term Output Power Average (%/hrs.)	≤3/1000	≤3/1000	≤3/1000	≤3/1000
Warm-up Time <sup>4</sup> (minutes)(from cold start)	<5	<5	<5	<5
Polarization Ratio	Minimum 100:1	Minimum 100:1	Minimum 100:1	Minimum 100:1
Laser Drive Modes	CW, Analog Modulation, Digital Modulation and Computer Control			
Digital Modulation				
Maximum Bandwidth (MHz)	150	150	150	150
Rise Time (10% to 90%)(nsec)	<2	<2	<2	<2
Fall Time (90% to 10%)(nsec)	<2	<2	<2	<2
Modulation Depth (extinction ratio)		>1,000,000:1 at 0 Hz, >250:1 at 150 MHz		
Analog Modulation				
Maximum Bandwidth (kHz)	300	500	500	500
Rise Time (10% to 90%)(nsec)	<1200	<700	<700	<700
Fall Time (10% to 90%)(nsec)	<800	<700	<700	<700
Modulation Depth (extinction ratio)	>1,000,000:1	>1,000,000:1	>1,000,000:1	>1,000,000:1
Laser Safety Classification	3b	3b	3b	3b
ESD Protection <sup>5</sup>	Level 4	Level 4	Level 4	Level 4
Power Consumption (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13
Laser Head Baseplate Temperature (Max., °C)	40	40	40	40
Heat Dissipation of Laser Head <sup>6</sup> (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13
Ambient Temperature <sup>7</sup>				
Operating Condition (°C)	10 to 40	10 to 40	10 to 40	10 to 40
Non-operating Condition (°C)	-20 to +60	-20 to +60	-20 to +60	-20 to +60
Shock Tolerance (g)(6 ms)	30	30	30	30

<sup>1</sup> Laser-to-laser tolerance. All LS versions ±2 nm. All LX versions with ±5 nm except 520LX with a 520 nm to 530 nm range, 640LX with 635 nm to 644 nm range and 660LX with 652 nm to 665 nm range.

<sup>2</sup> Output power is variable in CW Mode from 1 mW (1% for LX Models) to 110% of rated power. Specifications are valid for 100% power.

<sup>3</sup> M<sup>2</sup> measured with ModeMaster with 90/10 clip levels.

<sup>4</sup> Typical power-on delay 0.1 minutes.

<sup>5</sup> Electro-Static Discharge Standard IEC 1000-4-2, 1995.

<sup>6</sup> Typically 85% of heat load through the base plate. See Users Manual for more detail.

<sup>7</sup> Non-Condensing. See User Manual for more detail.

<sup>8</sup> Fiber FC/APC connector output not compatible for patchcord-to-patchcord connection.

# OBIS FP

Fiber Pigtailed Lasers for Plug-and-Play Simplicity Across the Spectrum

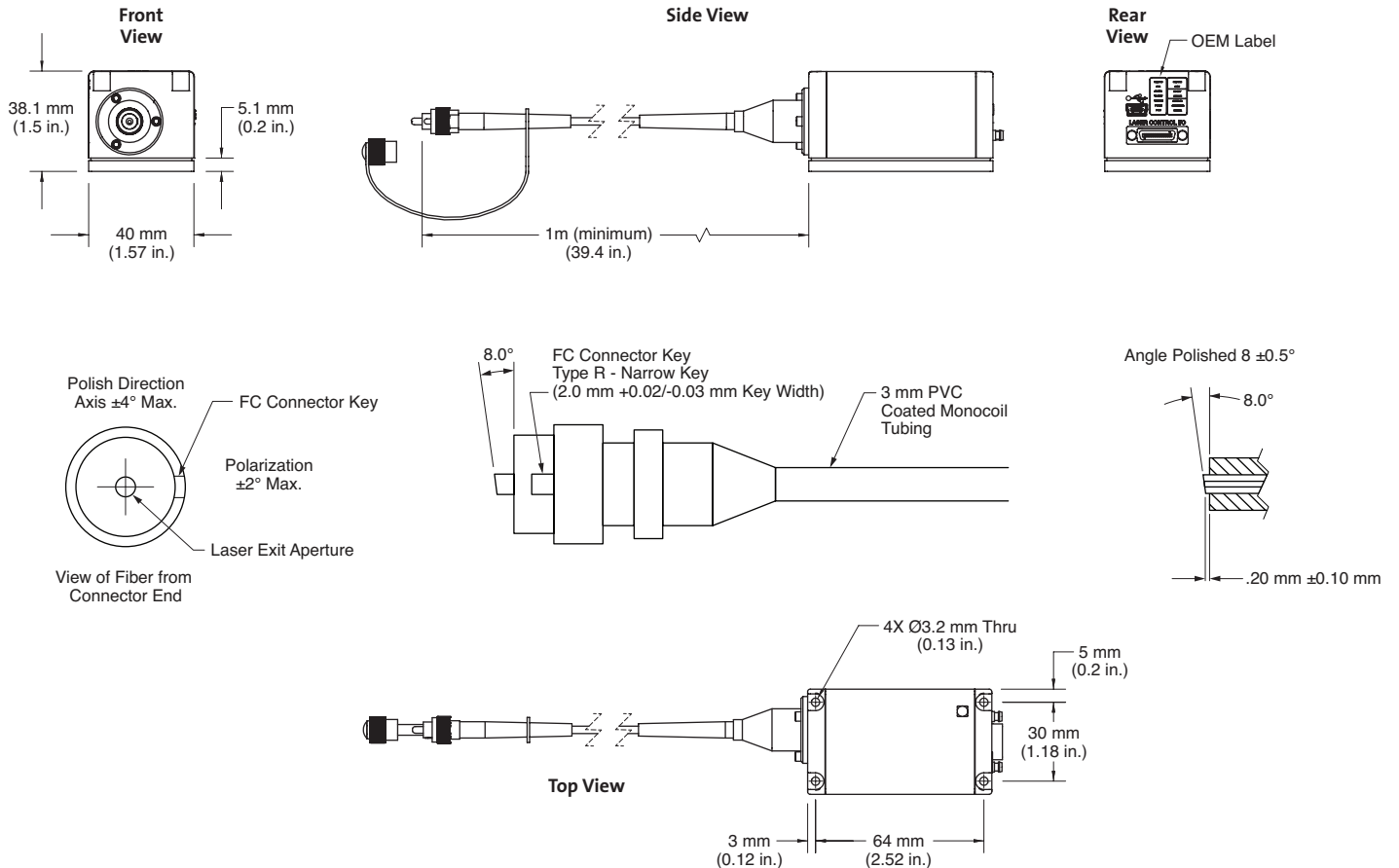
## Utility and Environmental Requirements

Operating Voltage <sup>1</sup> (VDC)	12 ±2
Dimensions (L x W x H)	
Laser	70 x 40 x 38 mm (2.75 x 1.57 x 1.5 in.)
OBIS Remote (optional)	105 x 68 x 36 mm (4.13 x 2.68 x 1.42 in.)
DC Power Supply (optional)	105 x 42 x 33 mm (4.13 x 1.65 x 1.3 in.)
Cable, Laser to OBIS Remote (optional)	1 m (3.28 ft.) (3 meter and 0.3 meter sold separately)
Fiber Minimum Bend Radius	51 mm (2.0 in.)
Weights	
Laser	0.23 kg (0.51 lbs.)
OBIS Remote (optional)	0.24 kg (0.53 lbs.)
DC Power Supply (optional)	0.36 kg (0.79 lbs.)
Cable, Laser to OBIS Remote (optional)	0.1 kg (0.22 lbs.) for 1 meter
Fiber Tensile Load (max.)	1 kg (2.2 lbs.)

<sup>1</sup> If user supplied, the DC power supply has to meet the following requirements: power >20W; ripple <5% peak-to-peak; line regulation <0.5%.

## Mechanical Specifications

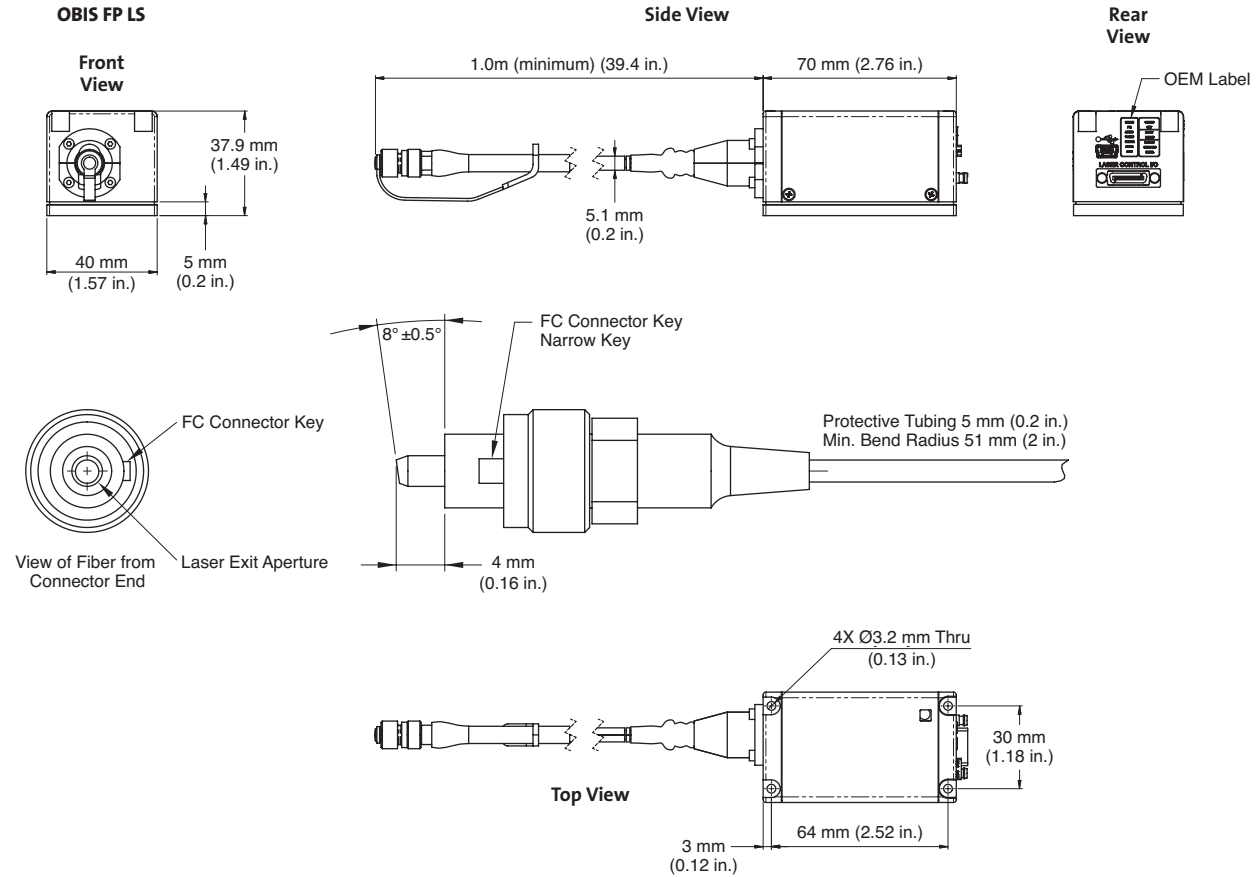
### OBIS FP LX



# OBIS FP

Fiber Pigtailed Lasers for Plug-and-Play Simplicity Across the Spectrum

## Mechanical Specifications



Looking for OBIS Galaxy Lasers? Please refer to the OBIS Galaxy data sheet and/or web page.



[www.Coherent.com](http://www.Coherent.com)

**Coherent, Inc.,**  
 5100 Patrick Henry Drive  
 Santa Clara, CA 95054  
 phone (800) 527-3786  
 (408) 764-4983  
 fax (408) 764-4646  
 e-mail [tech.sales@Coherent.com](mailto:tech.sales@Coherent.com)

Benelux +31 (30) 280 6060  
 China +86 (10) 8215 3600  
 France +33 (0)1 8038 1000  
 Germany/Austria/  
 Switzerland +49 (6071) 968 333  
 Italy +39 (02) 31 03 951  
 Japan +81 (3) 5635 8700  
 Korea +82 (2) 460 7900  
 Taiwan +886 (3) 505 2900  
 UK/Ireland +44 (1353) 658 833

Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice.

Coherent's scientific and industrial lasers are certified to comply with the Federal Regulations (21 CFR Subchapter J) as administered by the Center for Devices and Radiological Health on all systems ordered for shipment after August 2, 1976.

Coherent offers a limited warranty for all OBIS lasers. For full details of this warranty coverage, please refer to the Service section at [www.Coherent.com](http://www.Coherent.com) or contact your local Sales or Service Representative.



CE ISO 9001 Registered