



OBIS

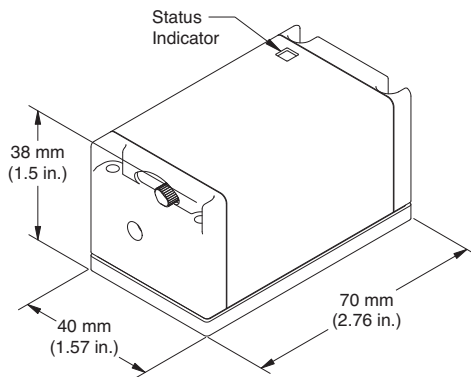
Platform for Plug-and-Play Simplicity Across the Spectrum



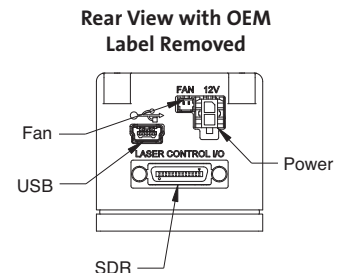
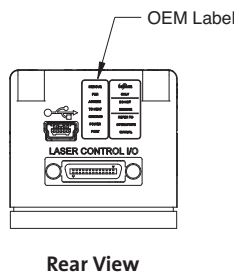
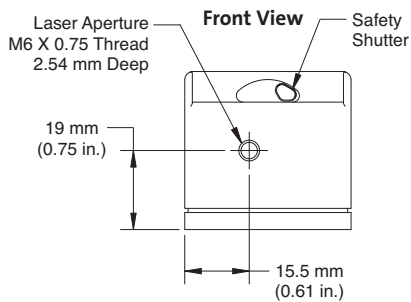
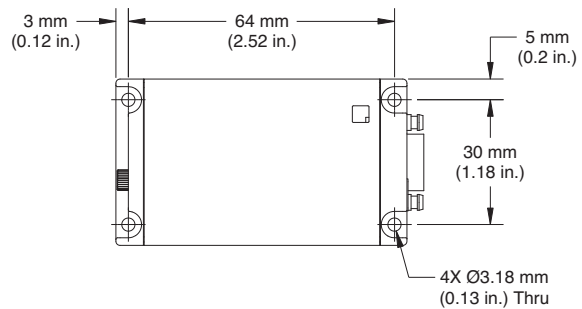
Features

- Compact and identical footprint across the spectrum
- Integrated control electronics
- OEM and end user versions
- Superior beam quality
- Analog and digital modulation
- USB with complete I/O and controls
- Superior reliability

Mechanical Specifications



Top View



Superior Reliability & Performance

OBIS

Platform for Plug-and-Play Simplicity Across the Spectrum

System Specifications

OBIS	375LX	405LX	445LX	PRELIMINARY 473LX
Wavelength ¹ (nm)	375	405	445	473
Output Power ² (mW)	16	50,100	75	60
Spatial Mode	TEM ₀₀	TEM ₀₀	TEM ₀₀	TEM ₀₀
M ² (Beam Quality) ³	≤1.3	≤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 ² (mm)	0.7 ±0.25	0.7 ±0.25	0.7 ±0.25	0.7 ±0.25
Beam Divergence (mrad, Full-Angle)	<1	<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
20 Hz to 20 kHz, peak-to-peak	<0.5	<0.5	<0.5	<0.5
Long-Term Power Stability (%) (8 hrs., ±3°C)	<2	<2	<2	<2
Warm-Up Time ⁴ (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)	100	150	150	150
Rise Time (10% to 90%)(nsec)	<3.5	<2	<2	<2
Fall Time (90% to 10%)(nsec)	<3.5	<2	<2	<2
Modulation Depth (extinction ratio)	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz			
Analog Modulation				
Maximum Bandwidth (MHz)	0.7	1	1	1
Rise Time (10% to 90%)(nsec)	<500	<350	<350	<350
Fall Time (90% to 10%)(nsec)	<500	<350	<350	<350
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 (mm) ⁵	<1	<1	<1	<1
Beam Angle ⁵ (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 ⁶	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)	40	40	40	40
Heat Dissipation of Laser Head ⁷ (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13
Ambient Temperature ⁸				
Operating Condition ⁹ (°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

¹ Laser-to-laser tolerance. All LS versions ±2 nm. All LX versions with ±5 nm except 640-40 with 635 to 642 nm range, 640-100 with 635 to 644 nm range, 660 with 652 to 665 nm range, and 785 nm with ±10 nm.

² Output power is variable in CW Mode from 1mW (1% for LX Models) to 10% 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.

³ For LX versions the M² and Beam Asymmetry measured with ModeMaster with 90/10 clip levels.

⁴ For LS versions typical power-on delay 1 minute. For LX versions typical power-on delay 0.1 minutes.

⁵ See mechanical drawing for exit beam location.

⁶ Electro-Static Discharge Standard IEC 1000-4-2, 1995.

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

⁸ Non-Condensing. See User Manual for more detail.

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

OBIS

Platform for Plug-and-Play Simplicity Across the Spectrum

System Specifications

OBIS	488LS	488LX	PRELIMINARY 514LS	PRELIMINARY 552LS
Wavelength ¹ (nm)	488	488	514	552
Output Power ² (mW)	20	50	20	20
Spatial Mode	TEM ₀₀	TEM ₀₀	TEM ₀₀	TEM ₀₀
M ² (Beam Quality) ³	≤1.1	≤1.2	≤1.1	≤1.1
Beam Asymmetry	≤1:1.1	≤1:1.2	≤1:1.1	≤1:1.1
Beam Diameter at 1/e ² (mm)	0.7 ±0.05	0.7 ±0.25	0.7 ±0.05	0.7 ±0.05
Beam Divergence (mrad, Full-Angle)	<1.2	<1.2	<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	≤0.25	≤0.05	≤0.25	≤0.25
20 Hz to 20 kHz, peak-to-peak	<1	<0.5	<1	<1
Long-Term Power Stability (%) (8 hrs., ±3°C)	<2	<2	<2	<2
Warm-Up Time ⁴ (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)	0.05	150	0.05	0.05
Rise Time (10% to 90%)(nsec)	<18,000	<2	<18,000	<18,000
Fall Time (90% to 10%)(nsec)	<2000	<2	<2000	<2000
Modulation Depth (extinction ratio)	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz			
Analog Modulation				
Maximum Bandwidth (MHz)	0.1	0.7	0.1	0.1
Rise Time (10% to 90%)(nsec)	<3000	<500	<3000	<3000
Fall Time (90% to 10%)(nsec)	<3000	<500	<3000	<3000
Modulation Depth (extinction ratio)	>50:1	>1,000,000:1	>50:1	>50:1
Static Alignment Tolerances				
Beam Position from Reference (mm) ⁵	±0.5	±1	±0.5	±0.5
Beam Angle ⁵ (mrad)	±2.5	±5	±2.5	±2.5
Beam Waist Position at Exit Window (mm)	±200	n/a	±200	±200
Laser Safety Classification	3b	3b	3b	3b
ESD Protection ⁶	Level 4	Level 4	Level 4	Level 4
Power Consumption (W)	Typical 8, Max. 12	Typical 5, Max. 13	Typical 8, Max. 12	Typical 8, Max. 12
Laser Head Baseplate Temp. (Max., °C)	40	40	40	40
Heat Dissipation of Laser Head ⁷ (W)	Typical 8, Max. 12	Typical 5, Max. 13	Typical 8, Max. 12	Typical 8, Max. 12
Ambient Temperature ⁸				
Operating Condition ⁹ (°C)	15 to 40	10 to 40	15 to 40	15 to 40
Non-Operating Condition (°C)	-20 to 60	-20 to 60	-20 to 60	-20 to 60
Shock Tolerance (g)(6 ms)	25	30	25	25

¹ Laser-to-laser tolerance. All LS versions ±2 nm. All LX versions with ±5 nm except 640-40 with 635 to 642 nm range, 640-100 with 635 to 644 nm range, 660 with 652 to 665 nm range, and 785 nm with ±10 nm.

² Output power is variable in CW Mode from 1mW (1% for LX Models) to 10% 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.

³ For LX versions the M² and Beam Asymmetry measured with ModeMaster with 90/10 clip levels.

⁴ For LS versions typical power-on delay 1 minute. For LX versions typical power-on delay 0.1 minutes.

⁵ See mechanical drawing for exit beam location.

⁶ Electro-Static Discharge Standard IEC 1000-4-2, 1995.

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

⁸ Non-Condensing. See User Manual for more detail.

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

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System Specifications

OBIS	PRELIMINARY 637LX	640LX	PRELIMINARY 647LX	660LX
Wavelength ¹ (nm)	637	640	647	660
Output Power ² (mW)	140	40,100	120	100
Spatial Mode	TEM ₀₀	TEM ₀₀	TEM ₀₀	TEM ₀₀
M ² (Beam Quality) ³	≤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 ² (mm)	0.7 ±0.25	0.7 ±0.25	0.7 ±0.25	0.7 ±0.25
Beam Divergence (mrad, Full-Angle)	<1.1	<1.5	<1.1	<1.5
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
20 Hz to 20 kHz, peak-to-peak	<0.5	<0.5	<0.5	<0.5
Long-Term Power Stability (%) (8 hrs., ±3°C)	<2	<2	<2	<2
Warm-Up Time ⁴ (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 (MHz)	1	1	1	1
Rise Time (10% to 90%) (nsec)	<350	<350	<350	<350
Fall Time (90% to 10%) (nsec)	<350	<350	<350	<350
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 ⁵ (mm)	<1	<1	<1	<1
Beam Angle ⁵ (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 ⁶	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)	40	40	40	40
Heat Dissipation of Laser Head ⁷ (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13
Ambient Temperature ⁸				
Operating Condition ⁹ (°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

¹ Laser-to-laser tolerance. All LS versions ±2 nm. All LX versions with ±5 nm except 640-40 with 635 to 642 nm range, 640-100 with 635 to 644 nm range, 647-120 with 646 to 650 nm range, 660 with 652 to 665 nm range, and 785 nm with ±10 nm.

² Output power is variable in CW Mode from 1mW (1% for LX Models) to 10% 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.

³ For LX versions the M² and Beam Asymmetry measured with ModeMaster with 90/10 clip levels.

⁴ For LS versions typical power-on delay 1 minute. For LX versions typical power-on delay 0.1 minutes.

⁵ See mechanical drawing for exit beam location.

⁶ Electro-Static Discharge Standard IEC 1000-4-2, 1995.

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

⁸ Non-Condensing. See User Manual for more detail.

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

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Platform for Plug-and-Play Simplicity Across the Spectrum

System Specifications

OBIS	PRELIMINARY 730LX	785LX
Wavelength ¹ (nm)	730	785
Output Power ² (mW)	30	50
Spatial Mode	TEM ₀₀	TEM ₀₀
M ² (Beam Quality) ³	≤1.2	≤1.2
Beam Asymmetry	≤1:1.2	≤1:1.2
Beam Diameter at 1/e ² (mm)	0.7 ±0.25	0.7 ±0.25
Beam Divergence (mrad, Full-Angle)	<1.1	<1.8
Pointing Stability (μrad) (over 2 hours after warm-up and ±3°C)	<30	<30
Pointing Stability Over Temp. (μrad/°C)	<5	<5
RMS Noise (%)		
20 Hz to 20 MHz	≤0.05	≤0.05
20 Hz to 20 kHz, peak-to-peak	<0.5	<0.5
Long-Term Power Stability (%) (8 hrs., ±3°C)	<2	<2
Warm-Up Time ⁴ (minutes) (from Cold Start)	<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	100
Rise Time (10% to 90%) (nsec)	<2	<3.5
Fall Time (90% to 10%) (nsec)	<2	<3.5
Modulation Depth (extinction ratio)	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	
Analog Modulation		
Maximum Bandwidth (MHz)	1	1
Rise Time (10% to 90%) (nsec)	<350	<350
Fall Time (90% to 10%) (nsec)	<350	<350
Modulation Depth (extinction ratio)	>1,000,000:1	>1,000,000:1
Static Alignment Tolerances		
Beam Position from Reference ⁵ (mm)	<1	<1
Beam Angle ⁵ (mrad)	<5	<5
Beam Waist Position at Exit Window (mm)	n/a	n/a
Laser Safety Classification	3b	3b
ESD Protection ⁶	Level 4	Level 4
Power Consumption (W)	Typical 5, Max. 13	Typical 5, Max. 13
Laser Head Baseplate Temp. (Max., °C)	40	40
Heat Dissipation of Laser Head ⁷ (W)	Typical 5, Max. 13	Typical 5, Max. 13
Ambient Temperature ⁸		
Operating Condition ⁹ (°C)	10 to 40	10 to 40
Non-Operating Condition (°C)	-20 to 60	-20 to 60
Shock Tolerance (g) (6 ms)	30	30

¹ Laser-to-laser tolerance. All LS versions ±2 nm. All LX versions with ±5 nm except 640-40 with 635 to 642 nm range, 640-100 with 635 to 644 nm range, 660 with 652 to 665 nm range, and 785 nm with ±10 nm.

² 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.

³ For LX versions the M² and Beam Asymmetry measured with ModeMaster with 90/10 clip levels.

⁴ For LS versions typical power-on delay 1 minute. For LX versions typical power-on delay 0.1 minutes.

⁵ See mechanical drawing for exit beam location.

⁶ Electro-Static Discharge Standard IEC 1000-4-2, 1995.

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

⁸ Non-Condensing. See User Manual for more detail.

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

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Platform for Plug-and-Play Simplicity Across the Spectrum

Utility and Environmental Requirements

Operating Voltage ¹ (VDC)	12 ±2
Dimensions (L x W x H)	
Laser Head	70 x 40 x 38 mm (2.75 x 1.57 x 1.5 in.)
Mini-Controller (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 head to controller (optional)	1 m (3.28 ft.) (3 meter sold separately)
Weights	
Laser Head	0.16 kg (0.35 lbs.)
Mini-Controller (optional)	0.24 kg (0.53 lbs.)
DC Power Supply (optional)	0.36 kg (0.79 lbs.)
Cable, laser head to controller (optional)	0.1 kg (0.22 lbs.) for 1 meter (0.25 kg for optional 3 meter sold separately)

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



See OBIS Accessories data sheet for a complete list of accessories.

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.

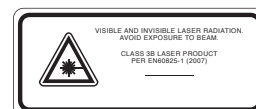
Coherent offers a limited warranty for all OBIS lasers. For full details of this warranty coverage, please refer to the Service section at www.Coherent.com or contact your local Sales or Service Representative.



www.Coherent.com

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