

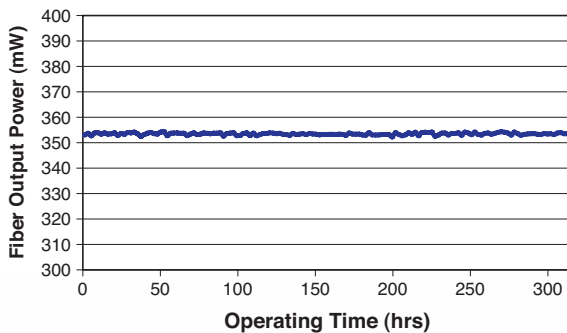
OBIS Galaxy

Fiber Input, Fiber Output, Eight Channel Beam Combiner

OBIS Galaxy is a revolutionary design with plug-and-play for laser beam combining.

With eight FC fiber inputs the OBIS Galaxy can easily accept a laser with plug-and-play integration. Each input is optimized to accept the fiber with a FC connection with patented beam combining of all eight inputs. The output of the combined eight lasers is a single-mode polarization-maintaining fiber, 2 meters in length, with a FC connector for your application.

Built with Coherent's rigorous standards using advanced stress-testing techniques, the OBIS Galaxy is both plug-and-play as well as robust, providing superior performance and reliability.



Example of the superior performance over time of an OBIS Galaxy output power with 6 lasers inputs (405 nm, 445 nm, 488 nm, 532 nm, 561 nm, 640 nm), totaling 510 mW input power and 353 mW output power (average 69% throughput efficiency)



Superior Reliability & Performance

OBIS Galaxy Features:

- **Compact and low profile**
- **Rugged design**
- **Eight inputs combined into a single output fiber**
- **Choices of input wavelengths:**
 - 405 nm
 - 445 nm or 458 nm
 - 488 nm
 - 514 nm
 - 532 nm
 - 552 nm or 561 nm
 - 590 nm
 - 640 nm
- **Single-mode polarization-maintaining**
- **High transmission beam combiner with typical 60% throughput per channel**
- **Plug-and-play FC inputs**
- **2 meter steel jacketed output fiber with extended life interface and AR coating**

OBIS Galaxy Applications:

- **Optogenetics**
- **Endoscopy**
- **Microscopy**
- **Cytometry**
- **Genomics**

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System Specifications¹

OBIS Galaxy

Eight Input Fiber Connections ² (nm)	405 445 or 458 488 514 532 552 or 561 590 640
Power Throughput ³ (%) (when used with Coherent Galaxy Compatible Lasers) for 405 nm to 590 nm for 640 nm	>45, Typical >60 >55, Typical >70
Maximum Power Per Channel (mW)	100
Maximum Total Output Power (mW)	<500
RMS Noise (%) (20 Hz to 2 MHz)	<0.5
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	<2
Fiber Connector Type (Input Connectors)	FC form-factor, ultra-flat contact FC/UFC with extended-life interface, anti-reflection (AR) coated tip
Polarization Extinction Ratio Loss (%)	<50
Long-term Power Throughput (%) (8 hours, ±3°C)	>95
Long-term Power Throughput (average) (%)	≤2/1000 hours

Output Fiber⁴

Fiber Connector Type ^{5,6} (distal end)	FC/APC, 8° angled, with extended-life interface
Fiber Cable Type	3 mm mono-coil
Fiber Cable Length (m) (minimum)	2
Fiber Numerical Aperture (NA) (1/e ²)	0.055
Fiber Core Diameter (μm) (typical)	3.8
Spatial Mode	TEM ₀₀
M ² (Beam Quality) ⁷	≤1.1
Fiber Minimum Bend Radius	51 mm (2.0 in.)
Fiber Tensile Load (maximum)	1 kg (2.2 lbs.)
Fiber Connector Type ⁶ (to OBIS Galaxy)	FC form-factor, ultra-flat contact FC/UFC with extended-life interface

Utility and Environmental Requirements

Dimensions	229 x 170 x 29 mm (9.0 x 6.7 x 1.1 in.)
Weight	1.4 kg (3 lbs.)
Shock Tolerance ⁸ (g) (11 ms)	30
Vibration ⁷ (g-RMS) (20 Hz to 2 kHz)	7.7
Ambient Temperature ⁹	
Operating Temperature	10 to 50°C (50 to 122°F)
Storage Temperature	-20 to 60°C (-4 to 140°F)
Laser Safety Classification ¹⁰	Not Applicable

¹ System specifications measured at 25°C.

² All input channels require a ±1 nm center wavelength tolerance. Required wavelength tolerances specifically: 405 nm with 404 nm to 406 nm, 445 nm with 444 nm to 446 nm, 458 nm with 457 nm to 459 nm, 488 nm with 487 nm to 489 nm, 514 nm with 513 nm to 515 nm, 532 nm with 531 nm to 533 nm, 552 nm with 551.5 nm to 553.5 nm, 561 nm with 560.5 nm to 562.5 nm, 590 nm with 587 nm to 589 nm, 640 nm with 641 nm to 643 nm.

³ The Galaxy Beam Combiner as tested and certified will be >60% power transmission per wavelength as measured with production tooling fixtures.

⁴ The Output Fiber may be used in reverse as an input channel to air-launch a laser into the FC/APC connector.

⁵ Fiber FC/APC connector output not compatible for patchcord-to-patchcord connection.

⁶ Recommend changing Connector Type to Fiber Connector Type such to match the description used in System Specifications section.

⁷ M² measured with ModeMaster with 90/10 Clip Levels.

⁸ Non-Operational with a before/after change of <10%.

⁹ Non-Condensing, Not hermetically sealed.

¹⁰ OBIS Galaxy is not a laser and therefore the Laser Safety Classification is determined by the end-user and application. Refer to CDRH 21 CFR 1040 subchapter J or IEC 60825-1.

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Accessories

OBIS Galaxy

Output Fiber^{1,2} (FC/UFC to FC/APC) Part # 1254255

Part Numbers

Beam Combiner, Eight Input FC/UFC, Single Output FC/APC, 405, 445, 488, 514, 532, 552, 590, 640 nm Part # 1253553

Beam Combiner, Eight Input FC/UFC, Single Output FC/APC, 405, 458, 488, 514, 532, 552, 590, 640 nm Part # 1253554

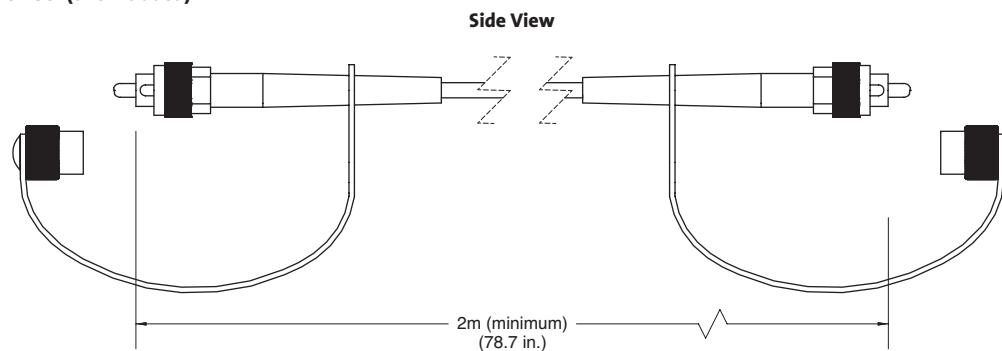
Beam Combiner, Eight Input FC/UFC, Single Output FC/APC, 405, 445, 488, 514, 532, 561, 590, 640 nm Part # 1253555

Beam Combiner, Eight Input FC/UFC, Single Output FC/APC, 405, 458, 488, 514, 532, 561, 590, 640 nm Part # 1253556

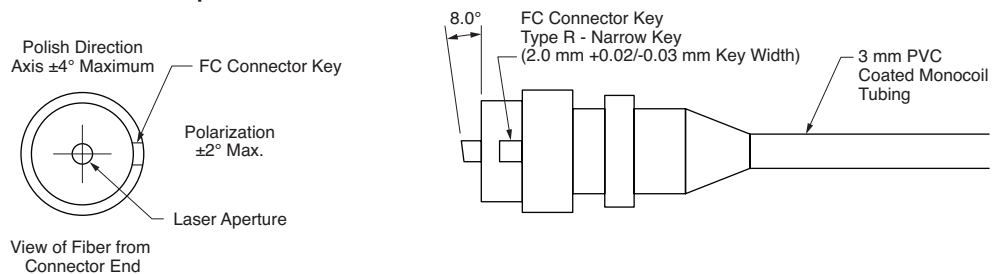
¹ Fiber Output Connector not compatible for patchcord-to-patchcord connection.

² One Output Fiber included with each Galaxy Beam Combiner. The Output Fiber is installed at the factory.

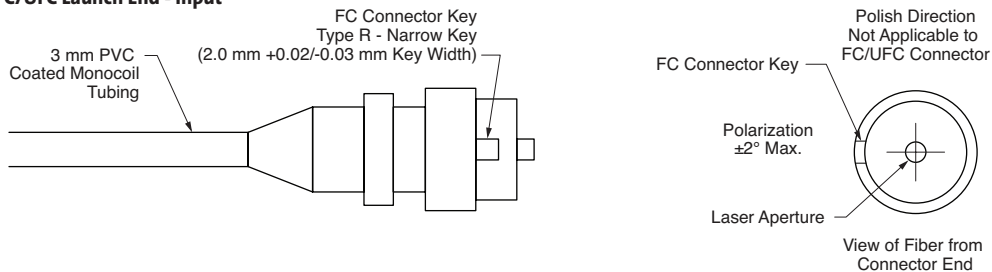
Mechanical Specifications for the Output Fiber (one included)



FC/APC Distal End - Output



FC/UFC Launch End - Input

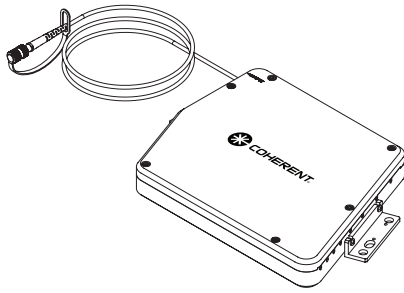


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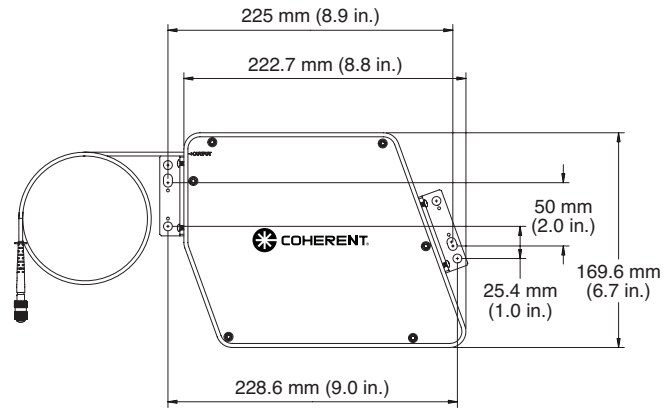
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Mechanical Specifications

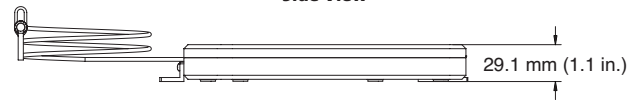
OBIS Galaxy



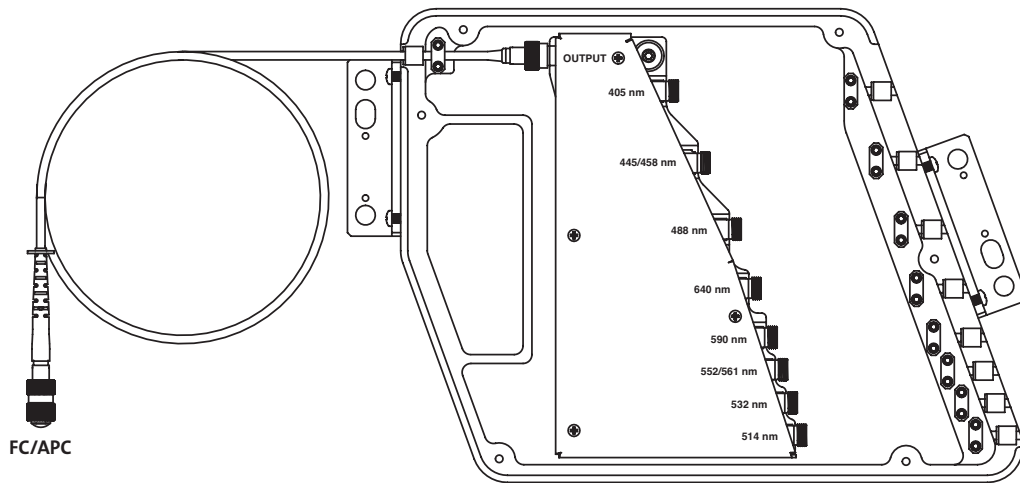
Top View



Side View



Interior View¹



¹ All nine internal connections are FC/UFC.

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Lasers for OBIS Galaxy

All lasers same as standard product except FC connector changed to UFC type.

OBIS FP LX Lasers for OBIS Galaxy

	Part Number
OBIS 405 nm LX 50 mW Laser: Fiber Pigtail:UFC, Galaxy	1236438
OBIS 405 nm LX 100 mW Laser: Fiber Pigtail:UFC, Galaxy	1236439
OBIS 445 nm LX 45 mW Laser: Fiber Pigtail:UFC, Galaxy	1236441
OBIS 458 nm LX 45 mW Laser: Fiber Pigtail:UFC, Galaxy	1236442
OBIS 488 nm LX 30 mW Laser: Fiber Pigtail:UFC, Galaxy	1236443
OBIS 488 nm LX 100 mW Laser: Fiber Pigtail:UFC, Galaxy	1236444
OBIS 514 nm LX 30 mW Laser: Fiber Pigtail: UFC, Galaxy	1253198
OBIS 640 nm LX 75 mW Laser: Fiber Pigtail:UFC, Galaxy	1236445

OBIS FP LS Lasers for OBIS Galaxy

OBIS 532 nm LS 80 mW Laser: Fiber Pigtail: UFC, Galaxy	1276599
OBIS 552 nm LS 80 mW Laser: Fiber Pigtail: UFC, Galaxy	1275619
OBIS 561 nm LS 80 mW Laser: Fiber Pigtail: UFC, Galaxy	1275608

Sapphire FP Lasers for OBIS Galaxy

Sapphire 514-FP UFC OEM Laser System, 120 mW, Galaxy	1276125
Sapphire 532-FP UFC OEM Laser System, 120 mW, Galaxy	1276167
Sapphire 552-FP UFC OEM Laser System, 120 mW, Galaxy	1276186
Sapphire 561-FP UFC OEM Laser System, 120 mW, Galaxy	1276187
Sapphire 588-FP UFC OEM Laser System, 40 mW, Galaxy	1276188

OBIS FP LX Laser



OBIS FP LS Laser



Sapphire FP Laser



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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 Galaxy Beam Combiners. 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.