

# MULTIWAVELENGTH FIBER-COUPLED LED LIGHT SOURCES

**G**optica multiwavelength fiber-coupled light sources are enabled by the latest LED technologies and Mightex's proprietary beam combining and coupling optics. Up to eight (8) LEDs are coherently combined into a single multi-mode fiber with the highest efficiency practically possible. Each LED can be powered independently and simultaneously, making the WFC-series a new class of light sources with a tunable spectrum.

The light sources are offered in two configurations: the standard configuration and the high-power configuration. Neutral beam combiners are used in the standard configuration. The standard configuration has the advantage of low cost and the most flexible wavelength plans. Any wavelength and white color may be combined in the standard configuration. For applications that require the highest possible output power, one should choose the high-power configuration where high-efficiency dichroic beam splitters are used to combine different wavelengths. Because not all possible dichroic beamsplitters are in stock, some wavelength combinations may require customization. Please contact us with your detailed wavelength plan to obtain a quotation for custom higher-power configurations.

## FEATURES

- 2, 4, 6, or 8 LEDs combined into a single fiber output
- No moving parts in optical path
- Interchangeable fiber with SMA connector
- Independent and simultaneous control of the LEDs
- High efficiency dichroic beam combiners
- Wide range of available wavelengths: UV/VIS/NIR and white
- Cooling fan for maximum intensity stability
- Optional multi-channel LED controller

## APPLICATIONS

- General purpose light source
- Microscope illuminator
- Fast spectrum tuning

## PERFORMANCE SPECIFICATIONS

### WFC High Power Configuration |



Typical Radiant Flux<sup>1,2</sup> (mW)

Wavelength Code	Wavelength (nm)	I <sub>op</sub> (mA)	V <sub>op</sub> (V)	2-Wavelength		4-Wavelength		6- or 8-Wavelength	
				400μm 0.22NA fiber	400μm 0.39NA fiber	400μm 0.22NA fiber	400μm 0.39NA fiber	400μm 0.22NA fiber	400μm 0.39NA fiber
365	365	1000	3.65	3.6	11.1	3.2	10	2.9	9
380	380	1000	3.2	2.3	4.6	1.9	3.8	1.7	3.4
385	385	1000	3.65	4.8	15	4.3	13.5	3.9	12.2
390	390	1000	3.1	4.8	9.6	4.3	8.6	3.9	7.8
395	395	1000	3.1	5.1	10.2	4.1	8.2	3.7	7.4
400	400	1000	3.8	4.4	13.8	4	12.6	2	6.3
405	405	1000	3	6.2	12.4	5	10	4.5	9
410	410	1000	3	6.2	12.4	5	10	4.5	9
415	415	1000	3	6.1	12.2	4.9	9.8	4.4	8.8
455	455	1000	3.9	5.6	17.6	5.1	16	4.5	14.1

WFC High Power Configuration | *continued*

Wavelength Code	Wavelength (nm)	I <sub>op</sub> (mA)	V <sub>op</sub> (V)	Typical Radiant Flux <sup>1,2</sup> (mW)					
				2-Wavelength		4-Wavelength		6- or 8-Wavelength	
				400µm 0.22NA fiber	400µm 0.39NA fiber	400µm 0.22NA fiber	400µm 0.39NA fiber	400µm 0.22NA fiber	400µm 0.39NA fiber
470	470	1000	3.9	6	18.8	5.4	17	4.9	15.4
490	490	700	3.7	2.2	4.4	1.8	3.6	1.5	3
505	505	1000	3.9	2.8	8.8	2.2	7.9	1.7	5.3
530	530	1000	3.9	2.4	7.5	2.2	6.9	1.9	6
560	560	700	3.9	1.5	3	1.3	2.6	1	2
590	590	1000	3.9	1.3	4.1	1.2	3.8	1.1	3.5
617	617	1000	3.9	5.2	16.3	4.7	14.8	4.2	13.2
625	625	1000	3.9	6.1	19.2	5.5	17.3	5	15.7
656	656	1000	2.7	5.2	16.3	4.7	14.8	4.2	13.2
680	680	600	2.7	1	2	0.8	1.6	0.5	1
700	700	500	2.1	0.4	0.8	0.2	0.4	90µW	180µW
720	720	600	2.2	0.6	1.2	0.4	0.8	0.2	0.4
740	740	1000	2.9	2.4	7.5	2.2	6.9	1.9	6
780	780	800	2.5	1.6	3.2	1.1	2.2	0.7	1.4
810	810	800	2.2	1	2	0.8	1.6	0.5	1
850	850	1000	2.1	3.2	10	2.9	9.1	2.6	8.2
870	870	700	2	2.4	7.5	2.2	6.9	1.9	6
940	940	1000	2.1	3.2	10	2.9	9.1	2.6	8.2
980	980	500	1.4	0.3	0.6	0.1	0.2	80µW	160µW
4000	warm white 4,000K	1000	3.9	-	-	-	-	-	-
5500	cool white 5,500K	1000	3.9	-	-	-	-	-	-
6500	glacier white 6,500K	1000	3.6	-	-	-	-	-	-

<sup>1</sup> Measured with a 400µm-core 0.22 numerical aperture (NA) fiber. Optical output power scales approximately linearly with fiber core area and NA<sup>2</sup>. With a 400µm-core 0.39NA fiber, for example, the output power will be 3.14X of the measured values using a 400µm-core 0.22NA fiber.

<sup>2</sup> Due to variations in the manufacturing process and operating parameters such as temperature and current, the actual output of any given LED may vary. Specifications are intended to be used as a guideline.

## WFC Standard Configuration |

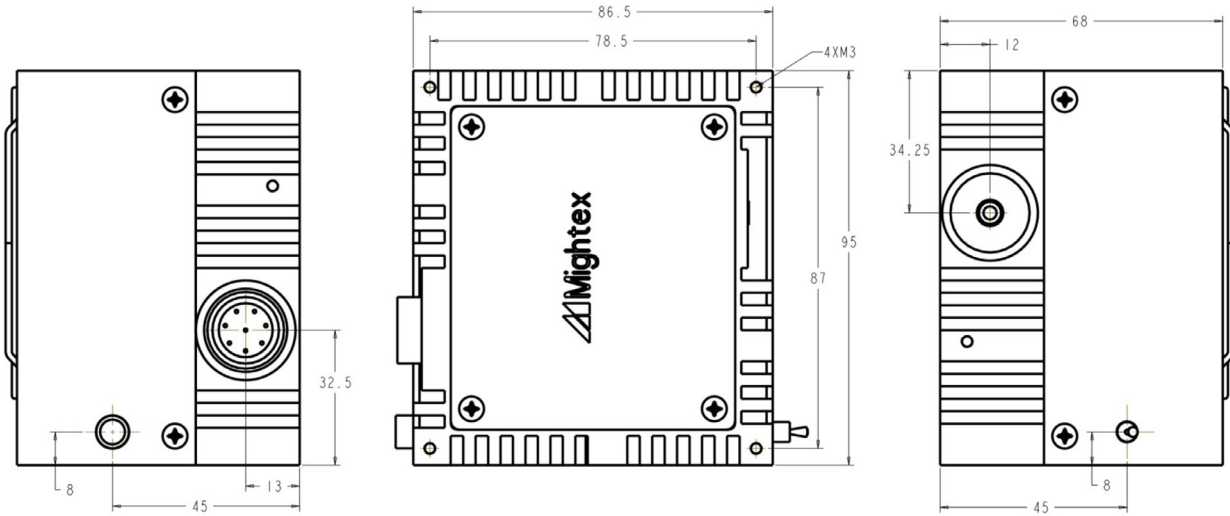


Wavelength Code	Wavelength (nm)	I <sub>op</sub> (mA)	V <sub>op</sub> (V)	Typical Radiant Flux <sup>1,2</sup> (mW)	
				2-Wavelength	4-Wavelength
365	365	1000	3.65	1.7	0.8
380	380	1000	3.2	1.1	0.4
385	385	1000	3.65	2.3	1.1
390	390	1000	3.1	2.1	0.8
395	395	1000	3.1	2.3	1.1
400	400	1000	3.8	1.1	0.5
405	405	1000	3	2.8	1
410	410	1000	3	2.8	1
415	415	1000	3	2.7	0.9
455	455	1000	3.9	2.7	1.3
470	470	1000	3.9	2.9	1.4
490	490	700	3.7	1	0.3
505	505	1000	3.9	1.4	0.6
530	530	1000	3.9	0.8	0.4
560	560	700	3.9	0.7	0.3
590	590	1000	3.9	0.6	0.3
617	617	1000	3.9	2.5	1.2
625	625	1000	3.9	2.5	1.2
656	656	1000	2.7	2.5	1.2
680	680	600	2.7	0.5	0.2
700	700	500	2.1	0.2	90μW
720	720	600	2.2	0.3	0.1
740	740	1000	2.9	1.2	0.7
780	780	800	2.5	0.7	0.3
810	810	800	2.2	0.5	0.2
850	850	1000	2.1	1.5	0.7
870	870	700	2	1.1	0.5
940	940	1000	2.1	1.5	0.7
980	980	500	1.4	0.1	70μW
4000	warm white 4,000K	1000	3.9	1.2	0.6
5500	cool white 5,500K	1000	3.9	1.2	0.6
6500	glacier white 6,500K	1000	3.6	1.2	0.6

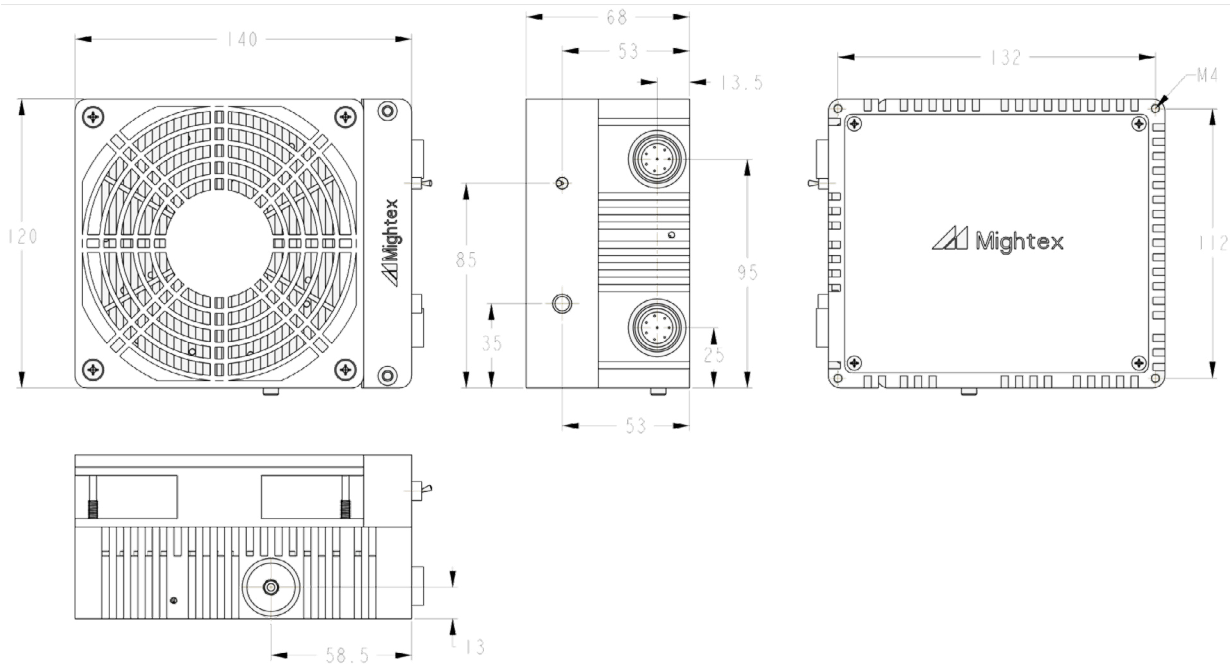
<sup>1</sup> Measured with a 400μm-core 0.22 numerical aperture (NA) fiber. Optical output power scales approximately linearly with fiber core area and NA<sup>2</sup>.  
<sup>2</sup> Due to variations in the manufacturing process and operating parameters such as temperature and current, the actual output of any given LED may vary. Specifications are intended to be used as a guideline.

## INSTALLATION DRAWINGS

### WFC Series 4-Channel Configuration



### WFC Series 8-Channel Configuration



## PART NUMBER AND ORDERING INFORMATION

**WFC** -   - **XXXX** - **XXXX** ... **XXXX** - **XXX**

S - Standard configuration H - High-power configuration	Number of wavelengths (2, 4, 6, or 8)	1st wave-length code	2nd wave-length code	8th wave-length code	Internal use
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For example, WFC-H4-0400-0470-0530-0625-000 is a high-power configuration light source with 4 wavelengths of 400nm, 470nm, 530nm, and 625nm.

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for more information!

## CONTACT US

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