LED LIGHT SOURCES

PRODUCT OVERVIEW

Mightex LED light sources come in a wide range of optical formats with an expansive wavelength portfolio to suit multiple applications and allowing users maximum flexibility when choosing the best LED light source solution for their needs.

Fiber-coupled LEDs

FCS Series Types A, B, & H High-power, SMA Connected • page 8

Multiwavelength Fiber-Coupled LEDs



WFC Series Up to 8 LEDs Standard and high-power • page 11

Lightguide-coupled LEDs

GCS Series Types A, B, & H High-power, multiple adaptors

• page **14**

Collimated LEDs

LCS Series Types A, B, J & H High-power, multiple apertures • *page* **17**

Multiwavelength Collimated LEDs

Multiple LEDs Different configurations

• page **22**





Low-Cost Spotlight LEDs

SLS Series Compact & ready-to-use High-power, integrated heat sinks

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Precision Spotlight LEDs

PLS Series High uniformity • page **24**

WheeLED Switchable LEDs

Up to 10 LEDs Manual and motorized

page 31

Cubic-S Spectrum Synthesizing Light Source

Arbitrary output spectrum Solid state, high speed • page **32**



LED Accessories

Multiple adaptors Cables and mounts • page 34



LED LIGHT SOURCE SELECTION GUIDE

Mightex has developed the most comprehensive LED source solutions in the market. In order to make it easier for our customers to choose the best LED solutions for their specific applications, below is a brief LED source selection guide:

STEP 1 Choose your desired wavelengths based on the charts below



New LED wavelengths are continually added to the portfolio. Please visit **www.mightexsystems.com** for updated list.





WARNING

1

2

3

LEDs can **only** be driven by a constant-current source and **not** by a voltage source, such as battery, AC/DC power supply, etc.

Please always verify the LED's current rating first before applying current to the LED.

Please always make sure **not** to apply current that is above the LED's current rating.

HIGH POWER FIBER-COUPLED LED LIGHT SOURCES

Mightex FCS-series fiber-coupled LED light sources employ the latest high-power LED technologies and a proprietary coupling optics to achieve maximum optical output power. Optical output is coupled into a fiber through a standard SMA fiber adaptor port (SMA fiber patch cords are sold separately). FCS series also features a locking electrical connector for secured connection. FCS series are designed as a universal light source for general lab use and OEM applications. The one-piece machined housing features multiple mounting holes. All Mightex LED drivers such as the SLC series or other LED drivers and current sources can be used to drive the light sources.

FEATURES

- High-power UV/VIS/NIR/white fiber-coupled LEDs
- Interchangeable fiber with SMA connector
- No moving parts in optical path
- Multiple mounting features for lab and OEM applications
- Optional LED controllers
- Compact, machined metal housing with integrated heat sink
- Locking electrical connector

PERFORMANCE SPECIFICATIONS

NOTE: Nominal wavelengths for LEDs in the visible spectrum indicate the wavelength at which the LED is most perceptive to the human eye and may differ from the peak wavelengths as measured by a spectrometer. Please contact a Mightex representative for further spectral information.

Type A FCS | passive cooling



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Type A FCS | continued

Part Number	Description	Nominal Wavelength (nm)	l _{op} (mA)	V _{op} (V)	Typical Radiant Flux ^{1,2} (mW) With 400µm 0.22NA Fiber	Typical Radiant Flux (mW) With 400µm 0.39NA Fiber
FCS-0530-000	530nm	530	1000	3.9	3.5	11
FCS-0560-000	560nm broadband	560	700	2.9	5.5	11
FCS-0590-000	590nm	590	1000	3.2	1.2	3.8
FCS-0617-001	617nm, 2W	617	1000	2.3	6.5	13
FCS-0625-000	625nm	625	1000	3	6.5	13
FCS-0656-000	656nm	656	1000	3.1	6.5	13
FCS-0680-000		680	600	2.7		4.4
FCS-0700-000	700nm	700	500	2.1	0.6	1.2
FCS-0720-000	720nm	720	600	2.2	0.9	1.8
FCS-0740-000	740nm	740	1000	2.9	3.6	7.2
FCS-0780-000		780	800	2.5		6.9
FCS-0810-000	NIR 810nm	810	800	2.2	1.5	3
FCS-0850-001	NIR 850nm, 3W	850	1000	3		12
FCS-0870-000	NIR 870nm	870	700	1.9	1.4	2.8
FCS-0910-000	NIR 910nm	910	1000	1.9		3
FCS-0940-000	NIR 940nm	940	1000	2.4	4	8

¹ Measured with a 400µm core 0.22 numerical aperture (NA) fiber. Output optical power scales approximately linearly with fiber core area and NA². For example, with a 400µm core 0.39NA fiber, the output power will be 3.14X for VIS/IR LEDs and 1.8X for DUV LEDs (due to smaller chip size), as shown in the last column above.

²Due 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.

Type B FCS | fan cooling



Part Number	Description	Nominal Wavelength (nm)	I _{op} (mA)	V _{op} (V)	Typical Radiant Flux ^{1,2} (mW) With 400µm 0.22NA Fiber	Typical Radiant Flux (mW) With 400µm 0.39NA Fiber
FCS-0470-101	Blue	470	3000	4.6	19	38
FCS-0530-100	Green	530	2400	4.9	8	15
FCS-0540-100	Broadband Green	540	3000	4.6	10	20
FCS-0625-100	Red	625	2400	2.9	9	18

 1 Measured with a 400 μ m core 0.22 numerical aperture (NA) fiber. Output optical power scales approximately linearly with fiber core area and NA². For example, with a 400 μ m core 0.39NA fiber, the output power will be 3.14X for VIS/IR LEDs and 1.8X for DUV LEDs (due to smaller chip size), as shown in the last column above.

²Due 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.

Type H FCS | super high-power, fan cooling



Part Number	Description	Nominal Wavelength (nm)	I _{op} (mA)	V _{op} (V)	Typical Radiant Flux ^{1,2} (mW) With 1000µm 0.22NA Fiber	Typical Radiant Flux (mW) With 1000µm 0.39NA Fiber
FCS-0365-201	UV		18	4.2	120	360
FCS-0405-200	UV	405	13	3.8	70	210
FCS-0415-200	Blue-Violet 415nm, 65W	415	18	3.6	275	350
FCS-0470-201	Blue, 60W	470	18	3.4	220	330
FCS-0470-202	Blue, 90W	470	27	3.4	260	390
FCS-0525-200	Green, 60W	525	13	4.6	50	160
FCS-0525-201	Green, 80W	525	18	4.4	120	190
FCS-0560-200	560 broadband, 70W	560	18	3.8	180	280
FCS-0625-200	Red, 38W	625	13	2.9	200	310
FCS-0625-201	Red, 42W	625	18	2.3	250	370
FCS-0730-200	NIR	730	18	5.9	110	170
FCS-0780-200	NIR	780	18	3.6	200	300
FCS-0850-200	NIR	850	18	3.75	220	340
FCS-6500-200	Glacier White, 30W	6500K	9	3.7	120	180
FCS-0650-201	Glacier White, 65W		18	3.75	190	280

¹ Measured with a 1000µm core 0.22 numerical aperture (NA) fiber. Output optical power scales approximately linearly with fiber core area and NA².

² 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.



MULTIWAVELENGTH FIBER-COUPLED LED LIGHT SOURCES

Mightex 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 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

FEATURES

- Up to 8 LED's combined into a single fiber output
- No moving parts in optical path
- Interchangeable fiber with SMA connector
- Independent and simultaneous control of the LED's
- 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

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.

PERFORMANCE SPECIFICATIONS

WFC High Power Configuration |



						r
Wavelength	Wavelength (nm)	$\int (mA)$		2-Wavelength	4-Wavelength	6-8-Wavelength
Code		т _{ор} (ПТА)	v _{op} (v)	400µm 0.22NA fiber	400µm 0.22NA fiber	400µm 0.22NA fiber
365	365	1000	3.65	3.6 (7.2)	3.2 (6.4)	2.9 (5.8)
385	385	1000	3.65	4.8 (9.6)	4.3 (8.6)	3.9 (7.8)
395	395	1000		5.1 (10.2)	4.1 (8.2)	3.7 (7.4)
400	400	1000	3.8	4.4 (8.8)	4 (8.0)	2.0 (4.0)
405	405	1000		6.2 (12.4)	5.0 (10.0)	4.5 (9.0)
410	410	1000	3	6.2 (12.4)	5 (10.0)	4.5 (9.0)
415	415	1000		6.1 (12.2)	4.9 (9.8)	4.4 (8.8)
425	425	1000	3	5.3 (10.6)	4.3 (8.6)	3.8 (7.6)
430	430	500	3.8	2.2 (4.4)	2.1 (4.2)	1.9 (3.8)
455	455	1000	3	13 (26)	12 (24)	10 (20)
470	470	1000	3.9	6.0 (12.0)	5.4 (10.8)	4.9 (9.8)
490	490	350	3.5	2.5 (5.0)	2.4 (4.8)	2.2 (4.4)
505	505	1000	3.9	2.8 (5.6)	2.2 (2.2)	1.7 (3.4)
530	530	1000	2.85	5.6 (11)	5.3 (11)	5 (10)

Typical Radiant Flux^{1,2} (mW)

	Typical Radiant Flux ^{1,2} (mW)								
				2-Wavelength			avelength	6-8-V	/avelength
Wavelength Code	Wavelength (nm)	l _{op} (mA)	V _{op} (V)	400µm 0.22NA fiber	400µm 0.39NA fiber	400µm 0.22NA fiber	400µm 0.39NA fiber	400µm 0.22NA fiber	400µm 0.39NA fiber
560	560	700	2.9	4.4	8.8	4.2	8.4	4	8
590	590	1000	3.9	1.3	4.1	1.2	3.8		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		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		1.4
810	810	800	2.2	1	2	0.8	1.6	0.5	1
850	850, 3W	1000	3	4.8	9.6	4.6	9.2	4.2	8.4
870	870	700	2	2.4	7.5	2.2	6.9	1.9	6
910	910	1000	1.9	1.2	2.4	1.1	2.2	0.9	1.8
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	-	-	-	-	-	-

High Power Configuration | continued

¹ Measured with a 400μm-core 0.22 numerical aperture (NA) fiber. Optical output power scales approximately linearly with fiber core area and NA². 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. ² 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 |



		agth Cada		Typical Radiant Flux ^{1,2} (mW)		
	Wavelength Code	Wavelength (nm)	l _{op} (mA)	V _{op} (V)	2-Wavelength	4-Wavelength
I	365	365	1000	3.65	1.7	0.8
	380	380	1000	3.2	1.1	0.4
l	385	385	1000	3.65	2.3	1.1
	390	390	1000	3.1	2.1	0.8
	395	395	1000		2.3	1.1
	400	400	1000	3.8	1.1	0.5
I	405	405	1000		2.8	



				Typical Radiant Flux ¹ (mW)		
Wavelength Code	Wavelength (nm)	I _{op} (mA)	V _{op} (V)	2-Wavelength	4-Wavelength	
410	410	1000	3	2.8	1	
415	415	1000	3	2.7	0.9	
420	420	1000	3.8	1.8	0.5	
425	425	1000	3	2.4	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		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	

Standard Configuration | continued

¹ Measured with a 400µm-core 0.22 numerical aperture (NA) fiber. Optical output power scales approximately linearly with fiber core area and NA².

²Due 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.



HIGH POWER LIQUID LIGHTGUIDE-COUPLED LED LIGHT SOURCES

Mightex GCS-series high power LED sources are designed for high-efficiency coupling of LED light into a liquid lightguide (LLG) or a fiber optic bundle. Virtually all lightguides with core diameters ranging from 3mm to 8mm can be used with the GCS series light source. Please note that lightguides and adapters are sold separately. GSC series also features a locking electrical connector for secured connections. GCS series are designed as a universal light source for general lab use and OEM applications. All Mightex LED drivers such

FEATURES

- High output power
- Broad wavelength selections in VIS, UV and NIR
- Interchangeable liquid lightguides or fiber bundles
 Compact, machined metal housing with integrated heat sink
- Multiple mounting features for lab and OEM applications
 Locking electrical connector

as the SLC series or other LED drivers and current sources can be used to drive the GCS-series light sources. The one-piece machined aluminum alloy housing features integrated heatsinks and multiple mounting holes.

Multi-chip LED emitters have been added to the product portfolio (Type-B). Some of these 7W to 15W LEDs have total optical power exceeding 1W, quadrupling the power of a single-chip LED (Type-A). Models with higher powers (i.e. Type-B with 7W and higher) feature a cooling fan, and have a different form factor compared to other models. Power supply for the cooling fan is included in the piece of the LED sources. To drive a GCS LED source, one can use any one of the wide range of LED controllers Mightex has to offer.

PERFORMANCE SPECIFICATIONS

Type A GCS | passive cooling

Part Number ¹	Description	Nominal Wavelength (nm)	I _{op} (mA)	V _{op} (V)	Typical Radiant Flux ^{2,3} (mW)
GCS-0310-03-xxxxx	DUV 310nm	310	600	5.8	
GCS-0325-03-xxxxx	DUV 325nm	325	600	4.7	14
GCS-0340-02-xxxxx	DUV 340nm	340	350	4.3	12
GCS-0365-04-xxxxx	UV 365nm	365	1000	3.65	220
GCS-0380-03-xxxxx	UV 380nm, 3W	380	1000	3.2	
GCS-0385-04-xxxxx	UV 385nm	385	1000	3.65	300
GCS-0390-03-xxxxx	UV 390nm	390	1000	3.1	
GCS-0395-03-xxxxx	UV 395nm	395	1000	3.1	180
GCS-0400-03-xxxxx	UV 400nm, 3W	400	1000	3.1	175
GCS-0405-03-xxxxx	UV 405nm	405	1000	3	215
GCS-0410-03-xxxxx	UV 410nm	410	1000	3	210
GCS-0415-03-xxxxx	415nm	415	1000	3	210
GCS-0430-02-xxxxx	430nm	430	500	3.8	130
GCS-0455-03-xxxxx	Royal Blue	455	1000	3.0	300
GCS-0470-03-xxxxx	Blue	470	1000	3.2	130
GCS-0471-04-xxxxx	Blue	471	350	3	95
GCS-0490-01-xxxxx	490nm	490	350	35	85



Dimonrex



Type A GCS | continued

Part Number ¹	Description	Nominal Wavelength (nm)	l _{op} (mA)	V _{op} (V)	Typical Radiant Flux ^{2,3} (mW)
GCS-0505-04-xxxxx	Cyan	505	1000	3.9	30
GCS-0530-03-xxxxx	Green	530	1000	2.85	120
GCS-0560-02-xxxxx	560nm, broadband	560	700	2.9	120
GCS-0590-03-xxxxx	Amber	590	1000	3.2	35
GCS-0617-02-xxxxx	Red-Orange	617	700	2.3	100
GCS-0625-03-xxxxx	Red	625	1000		100
GCS-0700-01-xxxxx	700nm	700	500	2.1	35
GCS-0720-01-xxxxx	720nm	720	600	2.2	50
GCS-0740-03-xxxxx	740nm	740	1000	2.9	130
GCS-0810-02-xxxxx	810nm	810	800	2.2	80
GCS-0850-03-xxxxx	850nm	850	1000	3	150
GCS-0870-01-xxxxx	870nm	870	700	1.9	75
GCS-0910-2-xxxxx	910nm	910	1000	1.9	80
GCS-0940-02-xxxxx	940nm	940	1000	2.4	125
GCS-0980-1-xxxxx	980nm	980	500	1.4	20
GCS-3000-03-xxxxx	Warm White	3,000K	1000	2.8	80
GCS-4000-04-xxxxx	Warm White	4,000K	1000	3.9	95
GCS-5500-04-xxxxx	Cool White	5,500K	1000	3.9	95
GCS-6500-04-xxxxx	Glacier White	6,500K	1000	3.6	95

¹ xxxxx is the Lightguide Adapter code. Please see Table 2 on page 16.

² Measured at the exiting end of a 1 meter long, 3mm-core, 0.59 numerical aperture (NA) liquid lightguide.

³Due 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.

Type B GCS | fan cooling

 Part Number ¹	Description	Nominal Wavelength (nm)	I _{op} (mA)	V _{op} (V)	Typical Radiant Flux ^{2,3} (mW)
GCS-0365-13-xxxxx	UV 365nm, 13W	365	3500	3.85	950
GCS-0385-11-xxxxx	UV 385nm, 11W	385	700	15.5	410
GCS-0385-13-xxxxx	UV 385nm, 13W	385		3.75	
GCS-0470-15-xxxxx	Blue, 15W	470	1000	15	400
GCS-0505-12-xxxxx	Cyan	505	1000	12.2	200
GCS-0530-15-xxxxx	Green, 15W	530	1000	15	180
GCS-0617-07-xxxxx	Red-Orange, 7W	617	700	9.6	175
GCS-0625-07-xxxxx	Red, 7W	625	700	9.6	200
GCS-3000-12-xxxxx	Warm White, 12W	3,000К	1000	12	240
GCS-5500-12-xxxxx	Cool White, 12W	5,500K	1000	12	300
GCS-6500-15-xxxxx	Glacier White, 15W	6,500K	1000	15	300

¹ xxxxx is the Lightguide Adapter code. Please see Table 2 on page 16.

² Measured at the exiting end of a 1 meter long, 3mm-core, 0.59 numerical aperture (NA) liquid lightguide.

³Due 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.

* When ordering an LED controller for a Type-B LED, please make sure to upgrade the AC/DC power adapter from the standard 12V to 24V.

Type H GCS | *super high-power, fan cooling*



Part Number ¹	Description	Nominal Wavelength (nm)	l _{op} (mA)	V _{op} (V)	Typical Radiant Flux ^{2,3} (mW)
GCS-0365-76-xxxxx	UV 365nm, 80W	365	18	4.2	2600
GCS-0405-65-xxxxx	UV 405nm, 65W	405	18	3.6	1600
GCS-0415-65-xxxxx	Blu-Violet 415nm, 65W	415		3.6	1900
GCS-0470-50-xxxxx	Blue, 50W	470	13	3.8	2000
GCS-0470-61-xxxxx		470		3.4	2400
GCS-0525-60-xxxxx	Green, 60W	525	13	4.6	800
GCS-0525-79-xxxxx		525		4.4	950
GCS-0560-68-xxxxx	560nm Broadband, 70W	560	18	3.8	1900
GCS-0625-38-xxxxx		625		2.9	1700
GCS-0560-68-xxxxx	560nm Broadband, 70W	560	18	3.8	1900
GCS-0625-38-xxxxx		625		2.9	1700
GCS-0625-42-xxxxx	Red, 42W	625	18	2.3	2100
GCS-0730-77-xxxxx		730		5.9	1100
GCS-0780-65-xxxxx	NIR, 65W	780	18	3.6	1400
GCS-0850-68-xxxxx	NIR, 70W	850	18	3.75	2100
GCS-6500-33-xxxxx	Glacier White, 30W	6,500K	9	3.7	1200
GCS-6500-65-xxxxx	Glacier White, 65W	6,500K		3.7	2200

¹ xxxxx is the Lightguide Adapter code. Please see Table 2 on page 16.

² Measured at the exiting end of a 1 meter long, 3mm-core, 0.59 numerical aperture (NA) liquid lightguide. Maximum CW output achievable with a BLS-13000-1E or BLS-18000-1 control module accordingly.

³Due 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.

Table 2 | Liquid Lightguide Adapters (for type-A GCS LEDs only)

Adapter Code	Ferrule Diameter (mm)	Ferrule Length (mm)
A0510	5	≥10
A0610	6	≥10
A0710	7	≥10
A0810	8	≥10
A0815	8	≥15



HIGH POWER COLLIMATED LED SOURCES

A LED collimator consists of a collimating lens and an LED emitter. The LED emitter is placed at the focal plane of the collimating lens. The collimating lens thus images the LED emitter into infinity. Mightex LED collimators employ a high-NA aspherical collimating lens for precision collimation and high light throughput. LED collimators can be used as the light source in an illumination system. For example LED collimators can replace the standard lamp assembly in a microscope to provide stable, intense, and fast-modulated illumination. Typically the rest of the illumination optics will image the LED emitter onto the pupil of the imaging optics whereas the lens aperture on the collimator where intensity is uniform will be projected onto the object. In other illumination applications a similar arrangement should be made to produce uniform and efficient illumination.

The LED emitters are mounted directly onto the metal base of the collimator which also features an integrated heat sink. This configuration minimizes thermal resistance between the LED emitter and the heat sink resulting in

FEATURES

- Interchangeable aspherical collimating lens
- High numerical aperture (NA)
- High power (up to 50W)
- Wide range of available wavelengths
- Adjustable focus
- Optional focusing module
- Optional lightguide adapter
- Multiple mounting features for lab and OEM applications
- Integrated heat sink
- Cooling fan for >7W models

APPLICATIONS

- Microscope illuminator
- General purpose light source
- Fiber coupling (with optional focusing module)

better heat dissipation. The collimating lens can be adjusted if needed for precise collimation. A locking ring fixes the lens position after adjustment. The collimators have been pre-adjusted in the factory.

Multi-chip LED emitters have been added to the product portfolio. Some of these 7W to 15W LEDs have total optical power exceeding 1W, quadrupling the power of a single-chip LED. Models with higher powers (7W and higher) feature a cooling fan, and have a different formfactor compared to other models. Please examine the installation drawings carefully. Power supply for the cooling fan is included in the price of the LED collimator sources.

The LED collimators include a 1.5-meter cable with two bare-wire terminals at the end.

The light sources can be driven by Mightex LED controllers or other LED controllers and current sources. An optional focusing module can be mounted on the front of the LED collimator to focus light into a tight spot which is an image of the LED emitter. One of the applications with the focusing module is coupling LED light into a fiber or a light guide.

Additional interchangeable collimating lenses are available to produce different beam sizes with the same light source.

PERFORMANCE SPECIFICATIONS

Type-A Deep UV LCS



Part Number	Nominal Wavelength (nm)	Beam Diameter (mm)	Half Diverging Angle (deg.)	l _{op} (mA)	V _{op} (V)	Typical Output Power ¹ (mW)
LCS-0265-02-23	265	23	1	350	6.3	20
LCS-0275-04-23	275	23	1	600	6	35
LCS-0280-03-23	280	23		500	5.8	30
LCS-0285-03-23	285	23	1	500	5.8	35
LCS-0295-03-23	295	23		600	5.8	25
LCS-0300-03-23	300	23	1	500	6	25
LCS-0310-03-23	310	23		350	5.8	30
LCS-0325-03-23	325	23	1	500	5.4	15
LCS-0340-02-22	340	22	1.7	500	4.3	23

¹Due 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.

Type-D Deep UV LCS

Part Number	Nominal Wavelength (nm)	Beam Diameter (mm)	Half Diverging Angle (deg.)	I _{op} (mA)	V _{op} (V)	Typical Output Power¹ (μW)
LCS-0255-0020-20	255	20	0.6	30	6.5	150
LCS-0295-0015-20	295	20	0.6	30	5.5	250
LCS-0310-0015-20	310	20	0.6	30	5.5	300
LCS-0340-0200-20	340	20	0.6	500	4.3	17mW

¹Due 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.

Type A LCS | passively cooled



	Nominal	Ha	Half Diverging Angle (deg.)					
Part Number	Wavelength (nm)	φ11mm ¹	φ22mm ¹	φ38mm¹	φ48mm ¹	l _{op} (mA)	V_{op} (V)	Power ² (mW)
LCS-0365-04-xx	365	6.8	3.4	2	1.5	1000	3.65	350
LCS-0385-04-xx	385	6.8	3.4	2	1.5	500	15	500
LCS-0395-03-xx	395	3.4	1.7	1	0.75	1000		270
LCS-0400-01-xx	400	5	2.5	1.5	1.1	350	3.5	100
LCS-0400-03-xx	400	3.4	1.7		0.75	1000		265
LCS-0400-04-xx	400	3.4	1.7	1	0.75	1000	3.5	750
LCS-0405-03-xx	405	3.4	1.7		0.75	1000		325
LCS-0410-03-xx	410	3.4	1.7	1	0.75	1000	3	315



	Nominal	Ha	Half Diverging Angle (deg.)					Turbical Quitaut
Part Number	Wavelength (nm)	φ11mm ¹	φ22mm ¹	φ38mm ¹	φ48mm ¹	l _{op} (mA)	V_{op} (V)	Power ² (mW)
LCS-0415-03-xx	415	3.4	1.7	1	0.75	1000	3	310
LCS-0430-02-xx	430	3.4	1.7	1	0.75	500	3.8	190
LCS-0455-03-xx	455	3.4	1.7	1	0.75	1000	3.0	500
LCS-0470-03-xx	470	3.4	1.7	1	0.75	1000	3.9	200
LCS-0471-02-xx	471	3.4	1.7	1	0.75	350	3	140
LCS-0490-01-xx	490	3.4	1.7	1	0.75	350	3.5	140
LCS-0505-03-xx	505	3.4	1.7	1	0.75	1000	3.9	135
LCS-0530-03-xx	530	3.4	1.7	1	0.75	1000	3.9	100
LCS-0560-03-xx	560 broadband	4.4	2.2	1.3	1	1000	2.9	240
LCS-0585-03-xx	585 broadband	4.4	2.2	1.3	1	700	2.9	82
LCS-0590-03-xx	590	3.4	1.7	1	0.75	1000	3.9	65
LCS-0617-03-xx	617	3.4	1.7	1	0.75	1000	3.9	150
LCS-0625-03-xx	625	3.4	1.7	1	0.75	1000	3.9	280
LCS-0656-03-xx	656	3.4	1.7	1	0.75	1000	3.1	280
LCS-0657-01-xx	657	5	2.5	1.5	1.1	350	2.4	100
LCS-0680-02-x	680	3.4	1.7	1	0.75	600	2.7	75
LCS-0700-01-xx	700	3.4	1.7	1	0.75	500	2.1	51
LCS-0720-01-xx	720	3.4	1.7	1	0.75	600	2.2	73
LCS-0740-03-xx	740	5	2.5	1.5	1.1	1000	2.5	200
LCS-0780-02-xx	780	3.4	1.7	1	0.75	800	2.5	110
LCS-0810-02-xx	810	3.4	1.7	1	0.75	800		120
LCS-0850-02-xx	850	3.4	1.7	1	0.75	1000	2.1	240
LCS-0850-03-xx	850	3.4		1	0.75	1000		430
LCS-0870-01-xx	870	3.4	1.7	1	0.75	700	1.9	110
LCS-0910-02-xx	910	3.4	1.7	1	0.75	1000		120
LCS-0940-02-xx	940	3.4	1.7	1	0.75	1000	1.8	200
LCS-0980-01-xx	980	3.4	1.7	1	0.75	500	1.4	30
LCS-3000-03-xx	warm white 3,000K	3.4	1.7	1	0.75	1000	2.8	150
LCS-4000-03-xx	warm white 4,000K	3.4	1.7	1	0.75	1000	3.9	180
LCS-5500-03-xx	cool white 5 500K	3.4	17	1	0.75	1000	39	170

Type A LCS | continued

¹ Clear aperture diameter. Use these two-digit numbers to replace xx in the part number.

² 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.

LED Light Sources

Type B LCS | fan cooling



	Nominal	Half Diverging Angle (deg.)						Typical
Part Number	Wavelength (nm)	φ11mm ¹	φ22mm ¹	φ38mm ¹	φ48mm ¹	l _{op} (mA)	V_{op} (V)	Output Power ² (mW)
LCS-0365-13-xx	365	6.8	3.4	2	1.5	3500	3.85	1200
LCS-0380-13-xx	380	6.8	3.4	2	1.5	1000	12.8	360
LCS-0385-07-xx	385	6.8	3.4	2	1.5	500	15	500
LCS-0385-11-xx	385	6.8	3.4	2	1.5	700	15.5	625
LCS-0385-13-xx	385	6.8	3.4	2	1.5	3500	3.75	1500
LCS-0390-12-xx	390	6.8	3.4	2	1.5	1000	12.4	750
LCS-0395-12-xx	395	6.8	3.4	2	1.5	1000	12.4	810
LCS-0400-12-xx	400	6.8	3.4	2	1.5	1000	12.4	795
LCS-0400-17-xx	400		5			1000	16.5	810
LCS-0405-12-xx	405	6.8	3.4	2	1.5	1000	12	975
LCS-0410-12-xx	410	6.8	3.4	2	1.5	1000	12	945
LCS-0415-12-xx	415	6.8	3.4	2	1.5	1000	12	930
LCS-0420-12-xx	420	6.8	3.4	2	1.5	1000	12	930
LCS-0425-12-xx	425	6.8	3.4	2	1.5	1000	12	870
LCS-0470-14-xx	470	3.4	1.7	1	0.75	3000	4.6	860
LCS-0470-15-xx	470	6.8	3.4	2	1.5	1000	15	600
LCS-0505-12-xx	505	6.8	3.4	2	1.5	1000	12.2	250
LCS-0530-15-xx	530	6.8	3.4	2	1.5	1000	15	300
LCS-0540-14-xx	540 broadband	4.4	2.2	1.3	1	3000	4.6	500
LCS-0590-05-xx	590	10	5	3	2.2	500	9.5	190
LCS-0617-10-xx	617	6.8	3.4	2	1.5	1000	10.8	250
LCS-0625-07-xx	625	6.8	3.4	2	1.5	700	9.6	600
LCS-0656-07-xx	656	8.8	4.4	2.6	2	700	9.6	800
LCS-0740-10-xx	740	10	5	3	2.2	1000	9.5	600
LCS-3000-12-xx	warm white 3,000K	6.8	3.4	2	1.5	1000	12	430
LCS-5500-12-xx	cool white 5,500K	6.8	3.4	2	1.5	1000	12	540
LCS-6500-15-xx	glacier white 6 500K	6.8	3.4	2		1000	15	540

 $^{\scriptscriptstyle 1}$ Clear aperture diameter. Use these two-digit numbers to replace xx in the part number.

² 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.

* When ordering an LED controller for a Type-B LED, please make sure to upgrade the AC/DC power adapter from the standard 12V to 24V.

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Type J LCS | high-power, passively cooled



	Nominal	Half Diverging Angle (deg.)						
Part Number	Wavelength (nm)	φ11mm ¹	φ22mm ¹	φ38mm¹	φ48mm ¹	I _{op} (mA)	V _{op} (V)	Power ^{2,3} (mW)
LCS-0365-13-22-J	365	NA	1.4	NA	NA	3500	3.85	1200
LCS-0470-14-22-J	470	NA	1.7	NA	NA	3000	4.6	860
LCS-0530-12-22-J	530	NA		NA	NA	2400	4.9	290
LCS-0540-14-22-J	540	NA	2.2	NA	NA	3000	4.6	500
LCS-0625-07-22-J	625	NA	1.4	NA	NA	2400	2.9	260

 $^{\scriptscriptstyle 1}\mbox{Clear}$ aperture diameter. Use these two-digit numbers to replace xx in the part number.

 $^{\rm 2}$ Maximum CW output achievable with a BLS-3000-2 BioLED control module.

³ 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.

Type H LCS | super high-power, fan cooling



	Nominal						Typical Out-
Part Number	Wavelength (nm)	φ22mm ¹	φ38mm¹	φ48mm¹	l _{op} (A)	V _{op} (V)	put Power ^{2,3} (mW)
LCS-0365-76-xx	365	5	3	2.2	18	3.9	10000
LCS-0405-65-xx	405	5	3	2.2	18	3.6	8300
LCS-0405-89-xx	405	5	3	2.2	24	3.7	9900
LCS-0415-65-xx	415	5	3	2.2	18	3.6	6000
LCS-0470-50-xx	470	5	3	2.2	13	3.8	6300
LCS-0470-61-xx	470	5	3	2.2	18	3.4	7500
LCS-0470-92-xx	470	5			27	3.4	9000
LCS-0525-60-xx	525	5	3	2.2	13	4.6	1300
LCS-0525-79-xx	525	5	3	2.2	18	4.4	1560
LCS-0560-68-xx	560 Broadband	5	3	2.2	18	3.8	3500
LCS-0560-84-xx	560 Broadband	5	3	2.2	22	3.8	3800
LCS-0625-38-xx	625	5	3	2.2	13	2.9	1100
LCS-0625-42-xx	625	5			18		3300
LCS-0730-77-xx	730	5	3	2.2	18	5.9	3500
LCS-0780-65-xx	780	5			18	3.6	4400
LCS-0850-68-xx	850	5	3	2.2	18	3.75	5500
LCS-6500-33-xx	glacier white, 6,500K	5	3	2.2	9	3.7	2000
LCS-6500-65-xx	glacier white, 6,500K	5	3	2.2	18	3.7	3500

¹Clear aperture diameter. Use these two-digit numbers to replace xx in the part number.

²Maximum CW output achievable with a matching BLS-13000-1E or a BLS-18000-1 BioLED control module accordingly.

³Due 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.

MULTIWAVELENGTH COLLIMATED LED SOURCES

Mightex multiwavelength collimated LED light sources are designed to be modular and allow end users the flexibility of building custom configurations that will best suit their application needs. Our LCS series LED light sources can be combined using Mightex's multiwavelength beam combiners and secured together using our connecting plates. Liquid lightguide or microscope adaptors can be added to the end of the

FEATURES

- Custom reconfigurable wavelengths and geometry
- 2 to 8 (or more) LED emitters, UV/VIS/NIR
- No moving parts
- Collimated beam, with optional lightguide adapter
- Optional microscope adapters

exiting aperture to either change the output beam format or couple the system to a microscope respectively. Please see more information about our beam combiners, connecting plates, and adapters in our LED light sources Accessories section on page 34. Multiwavelength collimated LED sources can be largely categorized into two groups depending on configuration geometry:

CONFIGURATIONS

Straight-through Configuration

Each additional LED/wavelength is added to the assembly in series, and hence the first LED/wavelength will have the longest optical path length while the last LED/wavelength will have the shortest.







MIGHTEX

LOW COST LED SPOTLIGHTS

High-power LEDs are a new class of light sources that have numerous applications in industrial, consumer, medical, and scientific fields. However, engineers and scientists often find that they have to design, fabricate heat sinks, optical mounts and solder electrical contacts before they can light up a high-power LED. Mightex provides ready-to-use high-power LED light sources with integrated heat sinks and mounted collecting optics. SiriusTM compact high-power light sources

FEATURES

- 1W and 3W high-power emitters
- High-efficiency collecting optics
- Precision machined aluminum housing
- Multiple mounting features for lab and OEM applications
- Round and oval illumination profiles

are designed as a universal light source for general lab use and OEM applications. The mechanical housing features multiple mounting holes compatible to common opto-mechanical mounts. SiriusTM light sources can be driven by Mightex's SiriusTM SLC-series multi-channel LED drivers or other LED drivers and current sources.

PERFORMANCE SPECIFICATIONS

SLS Series LED

Part Number	Wavelength (nm)	Description	I _{op} (mA)	V _{op} (V)	Typical Luminous Flux ⁴ (lm)
SLS-0109-X1	395 ~ 410	1W UV	350	3.5	180 mW
SLS-0300-X	5,500K	3W White LED	1000	3.9	80
SLS-0309-X ²	395 ~ 410	3W UV	700	3.5	350 mW
SLS-0301-X	455	W Royal Blue	1000	3.9	450 mW
SLS-0302-X	470	3W Blue	1000	3.9	30
SLS-0303-X	505	3W Cyan	1000	3.9	80
SLS-0304-X	530	3W Green	1000	3.9	80
SLS-0305-X	590	3W Amber	1000	3	80
SLS-0306-X	617	3W Red-Orange	1000	3	90
SLS-0307-X	625	3W Red	1000	3	80
SLS-0310-X	657	3W Deep Red	1000	3.1	280 mW
SLS-0208-X ³	850	2.4W Near Infrared	1000	1.8 ~ 2.4	375 mW
SLS-0300-X	5,500K	3W White LED	1000	3.9	80

¹x represents the lens code. Please see table 3 below for the lens code description.

²Emitter consists of two dies. Divergence angle approximately doubles along one direction when used with collecting optics.

³ Without collecting optics, this LED emits light from a 1mm x 1mm area onto a 60 degree cone.

⁴ 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.

Table 3 | Collecting Optics Specifications

Lens Code	Description	Clear Aperture (mm)	X-Half Angle (degree)	Y-Half Angle (degree)	Efficiency (%)
А	Narrow Beam	19	5	5	85
В	Medium Beam	19	15	15	85
С	Wide Beam	19	25	25	85
D	Oval Beam	19	5	20	85
E1	Fiber Bundle Coupling	19	7mm Full Field	7mm Full Field	85

¹ Focuses light into a spot approximately 12 mm in front of the lens. Ideal for coupling light into fiber bundles, liquid lightguides and integrators.



PRECISION LED SPOTLIGHTS WITH UNIFORM ILLUMINATION

Mightex precision LED spotlight consists of a state-ofthe-art high-power LED emitter and a proprietary high-NA multi-element aspherical optical system. The result is a high-power, uniform illumination spot with a highly-delineated edge.

Mightex PLS-series precision LED spotlights are a generalpurpose light source that can be used where uniform and high-intensity illumination is required. The projection lens at the front of the spotlight can be slid and locked to focus the illumination pattern at different working distances.

FEATURES

- Uniform illumination spot with a highly delineated edge
- High output power
- Multi-element aspherical optics
- Wide range of available wavelengths
- Adjustable focus
- Multiple mounting features for lab and OEM applications
- Integrated heatsink

With the standard projection lens the spot diameter is linearly proportional to the working distance.

The LED emitters are mounted directly on the metal base of the light source which also features an integrated heatsink. This configuration minimizes thermal resistance between the LED emitter and the heatsink resulting in better heat dissipation.

Multi-chip LED emitters (i.e. Type-B) have been added to the product portfolio. Some of these 7W to 15W LEDs have total optical power exceeding 500mW, doubling the power of a single-chip LED. Such Type-B models with higher powers (7W and higher) feature a cooling fan, and have a different form factor compared to Type-A models. Please examine the installation drawings carefully. Power supply for the cooling fan is included in the price of the Type-B precision LED spotlights.

The precision LED spotlight includes a 2-meter cable with two bare-wire terminals at the end. The light sources can be driven by Mightex's LED controllers, or other LED controllers and current sources.

PLS STANDARD RANGE

PLS high-uniformity, precision standard range LEDs have a minimum working distance of 100mm, being able to produce a 30mm diameter spot at such distance. Spot diameter scales linearly with working distance.

Key Features

• 100mm minimum working distance

PERFORMANCE SPECIFICATIONS

Type A PLS Standard | passively cooled

Part Number	Wavelength (nm)	l _{op} (mA)	V _{op} (V)	Typical Output Power ¹ (mW)
PLS-0340-030-02-S	340	500	4.3	11
PLS-0365-030-04-S	365	1000	3.65	250
PLS-0380-030-03-S	380	1000	3.2	65
PLS-0385-030-04-S	385	1000	3.65	250
PLS-0390-030-03-S	390	1000	3.1	140





Type A PLS Standard | continued

Part Number	Wavelength (nm)	l _{op} (mA)	V _{op} (V)	Typical Output Power ¹ (mW)
PLS-0395-030-03-S	395	1000	3.1	150
PLS-0400-030-S	400	350	3.5	50
PLS-0400-030-03-S	400	1000	3.1	150
PLS-0400-030-04-S	400	350	3.5	50
PLS-0405-030-03-S	405	1000	3	180
PLS-0410-030-03-S	410	1000	3	175
PLS-0415-030-03-S	415	1000	3	120
PLS-0430-030-02-S	430	500	3.8	100
PLS-0455-030-S	455	1000	3.9	150
PLS-0470-030-S	470	1000	3.9	110
PLS-0471-030-02-S	471	350	3	75
PLS-0490-030-01-S	490	350	3.5	80
PLS-0505-030-S	505	1000	3.9	65
PLS-0530-030-S	530	1000	3.9	50
PLS-0560-030-02-S	560 broadband	700	2.9	95
PLS-0590-030-S	590	1000	3.9	35
PLS-0617-030-S	617	1000	3.9	80
PLS-0625-030-S	625	1000	3.9	150
PLS-0656-030-S	656	1000	3.9	180
PLS-0680-030-S	680	600	2.7	20
PLS-0700-030-01-S	700	500	2.1	27
PLS-0720-030-01-S	720	600	2.2	39
PLS-0740-030-03-S	740	1000	2.5	100
PLS-0780-030-S	780	800	2.5	60
PLS-0810-030-02-S	810	800	2.2	65
PLS-0850-030-S	850	1000	2.1	85
PLS-0870-030-01-S	870	700	1.9	60
PLS-0910-030-02-S	910	1000	1.9	60
PLS-0940-030-S	940	700	1.5	50
PLS-0980-030-01-S	980	500	1.4	16
PLS-3000-030-S	Warm white 3,000K	1000	2.8	70
PLS-4000-030-S	Warm white 4,000K	1000	3.9	85
PLS-5500-030-S	Cool white 5,500K	1000	3.9	85
PLS-6500-030-S	Glacier white 6,500K	1000	3.6	100

¹ 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.



Type B PLS Standard | *fan cooling*



Part Number	Wavelength (nm)	l _{op} (mA)	V _{op} (V)	Typical Output Power ¹ (mW)
PLS-0365-030-13-S	365	3500	3.85	720
PLS-0385-030-07-S	385	500	15	300
PLS-0385-030-11-S	385	700	15.5	375
PLS-0385-030-13-S	385	3500	3.75	900
PLS-0400-030-17-S	400	1000	16.6	400
PLS-0470-030-14-S	470	3000	4.6	650
PLS-0470-030-15-S	470	1000	15	450
PLS-0505-030-12-S	505	1000	12.2	185
PLS-0530-030-15-S	530	1000	15	200
PLS-0540-030-14-S	540 broadband	3000	4.6	260
PLS-0590-030-05-S	590	500	9.5	130
PLS-0617-030-10-S	617	1000	10.8	200
PLS-0625-030-07-S	625	700	9.6	315
PLS-0656-030-07-S	656	700	9.6	420
PLS-0740-030-10-S	740	1000	9.5	300
PLS-3000-030-12-S	Warm white 3,000K	1000	12	320
PLS-5500-030-12-S	Cool white 5,500K	1000	12	400
PLS-6500-030-15-S	Glacier white 6,500K	1000	15	400

* When ordering an LED controller for a Type-B LED, please make sure to upgrade the AC/DC power adapter from the standard 12V to 24V. ¹ 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.



Type H PLS Standard | super high-power, fan cooling

Part Number	Wavelength (nm)	I _{op} (A)	V _{op} (V)	Typical Output Power ¹ (mW)
PLS-0365-030-76-S	365	18	4.2	2200
PLS-0405-030-65-S	405	13	3.6	1400
PLS-0405-030-89-S	405	18	3.7	1700
PLS-0415-030-65-S	415	13	3.8	1700
PLS-0470-030-50-S	470	13	3.8	1850
PLS-0470-030-61-S	470	18	3.4	2150
PLS-0470-030-92-S	470	27	3.4	2500
PLS-0525-030-60-S	525	13	4.6	715
PLS-0525-030-79-S	525	18	4.3	850
PLS-0560-030-68-S	560 Broadband	18	3.8	1800
PLS-0560-030-84-S	560 Broadband	22	3.8	3100
PLS-0625-030-38-S	625	13	2.9	605
PLS-0625-030-42-S	625	18	2.3	1800
PLS-0730-030-77-S	730	18	5.9	1900
PLS-0780-030-65-S	780	18	3.6	1250
PLS-0850-030-68-S	850	18	3.75	4400
PLS-6500-030-33-S	6,500K, 30W	9	3.7	1100
PLS-6500-030-65-S	6,500K, 65W	18	3.7	2000

¹ 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.

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PLS CLOSE RANGE

PLS high-uniformity, precision close range LEDs have a minimum working distance of 75mm, being able to produce a 10mm diameter spot at such distance. These LEDs also have a maximum working distance of 100mm, producing a spot 17mm in diameter.

Key Features

- 75mm minimum working distance
- 100mm maximum working distance

PERFORMANCE SPECIFICATIONS

Type A PLS Close Range | passively cooled



Part Number	Wavelength (nm)	I _{op} (mA)	$V_{op}(V)$	Typical Output Power ¹ (mW)
PLS-0340-010-02-C	340	500	4.3	11
PLS-0365-010-04-C	365	1000	3.65	180
PLS-0380-010-03-C	380	1000	3.2	65
PLS-0385-010-04-C	385	1000	3.65	250
PLS-0390-010-03-C	390	1000	3.1	140
PLS-0395-010-03-C	395	1000	3.1	150
PLS-0400-010-03-C	400	1000	3.1	150
PLS-0400-010-04-C	400	1000	3.5	380
PLS-0405-010-03-C	405	1000	3.1	180
PLS-0410-010-03-C	410	1000	3.1	175
PLS-0415-010-03-C	415	1000	3.1	120
PLS-0430-010-02-C	430	500	3.8	100
PLS-0455-010-C	455	1000	3.9	150
PLS-0470-010-C	470	1000	3.9	110
PLS-0471-010-02-C	471	350	3	75
PLS-0490-010-01-C	490	350	3.5	80
PLS-0505-010-C	505	1000	3.9	65
PLS-0530-010-C	530	1000	3.9	50
PLS-0560-010-02-C	560 broadband	700	2.9	95
PLS-0590-010-C	590	1000	3.9	35
PLS-0617-010-C	617	1000	3.9	80
PLS-0625-010-C	625	1000	3.9	90
PLS-0656-010-C	656	1000	3.9	180
LS-0680-010-02-	680	600	2.7	20
PLS-0700-010-01-C	700	500	2.1	27
PLS-0720-010-01-C	720	600	2.2	39
PLS-0740-010-03-C	740	1000	2.5	100
PLS-0780-010-C	780	800	2.5	60
PLS-0810-010-02-C	810	800	2.2	65
PLS-0850-010-C	850	1000	2.1	85
PLS-0870-010-01-C	870	700	1.9	60
PLS-0910-010-02-C	910	1000	1.9	60
PLS-0940-010-C	940	700	1.5	50

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Type A PLS Close Range | continued

Part Number	Wavelength (nm)	l _{op} (mA)	V _{op} (V)	Typical Output Power ¹ (mW)
PLS-0980-010-01-C	980	500	1.4	16
PLS-3000-010-C	Warm white 3,000K	1000	2.8	70
PLS-4000-010-C	Warm white 4,000K	1000	3.9	85
PLS-5500-010-C	Cool white 5,500K	1000	3.9	85
PLS-6500-010-C	Glacier white 6,500	1000	3.6	100

¹ 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.

Type B PLS Close Range | fan cooling

Part Number	Wavelength (nm)	l _{op} (mA)	V _{op} (V)	Typical Output Power ¹ (mW)
PLS-0365-010-13-C	365	3500	3.85	720
PLS-0385-010-07-C	385	500	15	300
PLS-0385-010-11-C	385	700	15.5	375
PLS-0385-010-13-C	385	3500	3.75	900
PLS-0400-010-17-C	400	1000	16.6	400
PLS-0470-010-14-C	470	3000	4.6	650
PLS-0470-010-15-C	470	1000	15	450
PLS-0505-010-12-C	505	1000	12.2	185
PLS-0530-010-15-C	530	1000	15	200
PLS-0540-010-14-C	540 broadband	3000	4.6	260
PLS-0590-010-05-C	590	500	9.5	130
PLS-0617-010-10-C	617	1000	10.8	200
PLS-0625-010-07-C	625	700	9.6	155
PLS-0656-010-07-C	656	700	9.6	420
PLS-0740-010-10-C	740	1000	9.5	300
PLS-3000-010-12-C	Warm white 3,000K	1000	12	320
PLS-5500-010-12-C	Cool white 5,500K	1000	12	400
PLS-6500-010-15-C	Glacier white 6,500K	1000	15	400

* When ordering an LED controller for a Type-B LED, please make sure to upgrade the AC/DC power adapter from the standard 12V to 24V. ¹ 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.

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Type H PLS Close Range | super high-power, fan cooling

	1	I	I	1
Part Number	Wavelength (nm)	I _{op} (A)	V _{op} (V)	Typical Output Power ¹ (mW)
PLS-0365-010-76-C	365	18	4.2	640
PLS-0405-010-65-C	405	18	3.6	420
PLS-0405-010-89-C	405	24	3.7	500
PLS-0415-010-65-C	415	18	3.6	600
PLS-0470-010-50-C	470	13	3.8	630
PLS-0470-010-61-C	470	18	3.4	750
PLS-0470-010-92-C	470	27	3.4	900
PLS-0525-010-60-C	525	13	4.6	240
PLS-0525-010-79-C	525	18	4.4	280
PLS-0560-010-68-C	560 broadband	18	3.8	950
PLS-0560010-84-C	560 broadband	22	3.8	1000
PLS-0625-010-38-C	625	13	2.9	200
PLS-0730-010-77-C	730	18	5.9	650
PLS-0780-010-65-C	780	18	3.6	440
PLS-6500-010-33-C	Glacier White 6,500K	9	3.7	400
PLS-6500-010-65-C	Glacier white 6,500K	18	3.7	680

¹ 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.



MIGHTEX

WHEELED[™] WAVELENGTH-SWITCHABLE LED SOURCES

Many applications require wavelength-switchable sources. For example, in vision applications, different types of objects may require different illumination wavelengths for optimized contrast. Mightex WHEELED[™] wavelength-switchable LED sources let users switch between a selection of LED sources with different wavelengths and/or white LEDs. A wide range of wavelengths and white LEDs are available for users to choose from. The selected LEDs are installed in the light source chassis during assembly. Users can then choose between 2 LED switching options: manually turning a hand wheel or via software with a motorized carrier.

FEATURES

- Up to 10 LED emitters
- Wide range of available wavelengths: UV/VIS/NIR and white
- Standard 22mm-diameter collimating optics
- Optional focusing module
- Optional fiber-coupling optics
- Optional lightguide-coupling optics
- Optional LED controllers

A high-NA aspherical collimating optics is included for precision collimation and high light throughput. The clear aperture of the optics is 22mm in diameter. Other optional optics may be added for fiber/lightguide coupling and other functions. Over-current protection is built into the light source to prevent potential damage during switching. An optional focusing module can be mounted on the front of the LED collimator to focus light into a tight spot (which is an image of the LED emitter). One of the applications of the focusing module is coupling LED light into a fiber or a lightguide.

MANUAL SWITCHING

This WLS-series WHEELED[™] mounts up to 9 LEDs of different wavelengths on a hand wheel which can be manually turned to switch from LED to LED. The light source includes a 5-ft electrical cable with a connector on one end to be plugged into the light source, and two bare-wire terminals at the other end. The light sources can be driven by Mightex LED controllers or other LED controllers and current sources. Only a single driving channel is required because at any time only one wavelength is powered up.

Key Features

• Up to 9 LED emitters

- Wide range of available wavelengths: UV/VIS/NIR and white
- Standard 22mm-diameter collimating optics
- Optional focusing module
- Optional fiber-coupling optics
- Optional lightguide-coupling optics
- Optional LED controllers

PERFORMANCE SPECIFICATIONS

WLS Series LED |

WLS-22-A | Chassis for WheeLED Source

Part Number	Wavelength (nm)	Half Diverging Angle (deg.)	l _{op} (mA)	V _{op} (V)	Typical Output Power ¹ (mW)
WLS-LED-0340-02	340	3.4	350	4.3	23
WLS-LED-0365-04	365	3.4	1000	3.65	350
WLS-LED-0385-04	385	3.4	1000	3.65	500
WLS-LED-0400-01	400	2.5	350	3.5	100

PERFORMANCE SPECIFICATIONS | continued

Part Number	Wavelength (nm)	Half Diverging Angle (deg.)	l _{op} (mA)	V _{op} (V)	Typical Output Power ¹ (mW)
WLS-LED-0400-04	400	1.7	1000	3.5	750
WLS-LED-0405-03	405	1.7	1000	3	325
WLS-LED-0410-03	410	1.7	1000	3	315
WLS-LED-0415-03	415	1.7	1000	3	310
WLS-LED-0420-03	420	1.7	1000	3	310
WLS-LED-0425-03	425	1.7	1000	3	290
WLS-LED-0656-03	656	1.7	1000	2.7	280
WLS-LED-0680-02	680	1.7	600	2.7	75
WLS-LED-0740-03	740	2.5	1000	2.5	200
WLS-LED-0780-02	780	1.7	800	2.5	110
WLS-LED-0810-02	810	1.7	800	2.2	120
WLS-LED-0850-03	850, 3W	1.7	1000	3	430
WLS-LED-0455-03	455	1.7	1000	3.9	280
WLS-LED-0470-03	470	1.7	1000	3.9	200
WLS-LED-0490-01	490	1.7	350	3.5	140
WLS-LED-0505-03	505	1.7	1000	3.9	135
WLS-LED-0530-03	530	1.7	1000	3.9	100
WLS-LED-0560-02	560 broadband	1.7	700	2.9	180
WLS-LED-0560-03	560 broadband	2.2	1000	2.9	240
WLS-LED-0590-03	590	1.7	1000	3.9	65
WLS-LED-0617-03	617	1.7	1000	3.9	280
WLS-LED-0625-03	625	1.7	1000	3.9	280
WLS-LED-0656-03	656	1.7	1000	2.7	280
WLS-LED-0680-02	680	1.7	600	2.7	75
WLS-LED-0740-03	740	2.5	1000	2.5	200
WLS-LED-0780-02	780	1.7	800	2.5	110
WLS-LED-0810-02	810	1.7	800	2.2	120
WLS-LED-0850-03	850, 3W	1.7	1000	3	430
WLS-LED-0870-01	870	1.7	700		110
WLS-LED-0940-01	940	1.7	700	1.5	100
WLS-LED-0940-02	940	1.7	1000	1.8	200
WLS-LED-0980-01	980	1.7	500	1.4	30
WLS-LED-4000-03	warm white 4,000K	1.7	1000	3.9	180
WLS-LED-5500-03	cool white 5,500K	1.7	1000	3.9	170
WLS-LED-6500-03	glacier white 6,500K	1.7	1000	3.6	180

¹ 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.



MOTORIZED SWITCHING

his WLS-series WHEELED[™] mounts up to 10 LEDs of different wavelengths on a motorized wheel which can be turned electronically via software. The motorized WheeLEDTM has a built-in LED driver that provides the necessary current for each emitter. LED intensity can be modulated via a 0-5V external analog trigger via a BNC connector port.

Key Features

- Up to 10 LED emitters
- Wide range of available wavelengths: UV/ VIS/NIR and white
- Standard 22mm-diameter collimating optics
- Switch wavelength by PC software GUI or by SDK
- Control output intensity by PC software GUI, by SDK, or by external 0-5V analog voltage input
- Optional focusing module
- Optional lightguide-coupling optics
- Optional fiber-coupling optics

PERFORMANCE SPECIFICATIONS

WLS Series LED

WLS-22-M | Chassis for Motorized WheeLED Source



Part Number	Wavelength (nm)	Half Diverging Angle (deg.)	l _{op} (mA)	V _{op} (V)	Typical Output Power ¹ (mW)
WLS-LED-0340-02	340	3.4	350	4.3	23
WLS-LED-0365-04	365	3.4	1000	3.65	350
WLS-LED-0385-04	385	3.4	1000	3.65	500
WLS-LED-0400-01	400	2.5	350	3.5	100
WLS-LED-0400-04	400	1.7	1000	3.5	750
WLS-LED-0405-03	405	1.7	1000	3	325
WLS-LED-0410-03	410	1.7	1000	3	315
WLS-LED-0415-03	415	1.7	1000	3	310
WLS-LED-0420-03	420	1.7	1000	3	310
WLS-LED-0425-03	425	1.7	1000	3	290
WLS-LED-0455-03	455	1.7	1000	3.9	280
WLS-LED-0470-03	470	1.7	1000	3.9	200
WLS-LED-0490-01	490	1.7	350	3.5	140
WLS-LED-0505-03	505	1.7	1000	3.9	135
WLS-LED-0530-03	530	1.7	1000	3.9	100
WLS-LED-0560-02	560 broadband	1.7	700	2.9	180
WLS-LED-0560-03	560 broadband	2.2	1000	2.9	240
WLS-LED-0590-03	590	1.7	1000	3.9	65
WLS-LED-0617-03	617	1.7	1000	3.9	280
WLS-LED-0625-03	625	1.7	1000	3.9	280

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LED Light Sources

WLS Series LED | continued

Part Number	Wavelength (nm)	Half Diverging Angle (deg.)	I _{op} (mA)	V _{op} (V)	Typical Output Power ¹ (mW)
WLS-LED-0870-01	870	1.7	700	1.9	110
WLS-LED-0940-01	940	1.7	700	1.5	100
WLS-LED-0940-02	940	1.7	1000	1.8	200
WLS-LED-0980-01	980	1.7	500	1.4	30
WLS-LED-4000-03	warm white 4,000K	1.7	1000	3.9	180
WLS-LED-5500-03	cool white 5,500K	1.7	1000	3.9	170
WLS-LED-6500-03	glacier white 6,500K	1.7	1000	3.6	180

¹ 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.





CUBIC-S SPECTRUM SYNTHESIZING SOURCE

Multi-spectral imaging, LCD display characterization, detector calibration, and many other applications can benefit tremendously from a light source with an arbitrary programmable optical spectrum. As opposed to conventional tunable lasers, which only produce a single wavelength at a time, Mightex's Cubic-S Optical Spectrum Synthesizing Source is capable of dynamically generating any custom-specified target spectrum across the entire spectral range.

Mightex Cubic-S is composed of the following modules:

- 1. An Optical Core Module;
- 2. A Controller Electronic Module;
- 3. An optional Spectrum Monitor; and
- 4. Control Software in the computer.

FEATURES

- Arbitrary output spectrum
- Software controlled
- Solid state, high-speed
- Dynamically programmable
- High stability
- Excellent extinction ratio

The Optical Core Module consists of 19 wavelength bands approximately evenly spaced between 395nm and 700nm. Light from different wavelength bands are combined into a single output. The intensity of each band can be individually controlled to generate any custom-specified spectrum. Tuning resolution is 10-bit and response time is 20ms.

The 'spectrum tailored' light is output from a 1,000 micron-core, 0.22NA multimode fiber. Total output power can be as high as 10mW. Various optical adaptors (optional) are provided, which can be used to couple the output light into fiber-optic or liquid lightguides.

Mightex Cubic-S is controlled through a powerful PC-based user interface. A software development kit (SDK) is also included so that users may integrate the light source into their own applications.

Also available is a spectrum monitoring option that allows users to monitor and control the output spectrum in real time.

MODELS

Cubic-S Optical Spectrum Synthesizing Source

CBS-VS19-U



POLYGON DMD ILLUMINATOR



FEATURES

SIMULTANEOUS MULTI REGION

Illuminate multiple regions of interest simultaneously with no scanning delay.

MULTIWAVELENGTH

Choose between models that have builtin LEDs or models that accept an external light source input.

ANY SHAPE OR SIZE

Control the shape and size of the light mask, giving maximum flexibility of the patterned illumination.

COMPLETE TIMING CONTROL

Reaching a pattern switching speed of up to 6600 fps, create dynamic pattern sequences with our easy-to-use software.

APPLICATIONS

- Photolithography
- Micropatterning
- Cellular microenvironments
- Optogenetics
- Uncaging

For detailed performance information please turn to our Patterned Illumination section on *page* **91**





LED LIGHT SOURCES ACCESSORIES

FIBER-COUPLED LED ACCESSORIES

Part Number	Description
ACC-FCS-C05	Cable for (1) FCS-series fiber-coupled LED light sources; (2) WLS-series WheeLED Wavelength-Switchable LED Sources; (3) FFC-series Fiber-Coupled LED Light Sources; and (4) GCS-series Lightguide Coupled LED Sources.
ACC-FCS-C05-BLS	Cable for FCS-, FFC-, GCS-, and WLS-series LED light sources. With push-pull connectors on both ends for connecting to BLS-controllers.
ACC-WFC4-C05	Cable for 4-channel WFC-series LED sources.
ACC-WFC4-C05-ADP	Adapter cable for converting bare wire connectors to push-pull connectors used for connecting to BLS-controller.
ACC-WFC4-C05-BLS	Cable for 4-channel WFC-light sources. With 4 push-pull connectors for connecting to BLS-controllers.
ACC-WFC4-C05-BLS-ADP	Adapter cable for converting push-pull connectors used for connecting to BLS-controller to bare wire con- nectors.

MULTIMODE FIBER PATCHCORDS

Part Number	Description
FPC-0200-22-02SMA	Multimode Fiber Patchcord, 0.22 NA, 200µm Core SMA Connectors, 2 meters in length
FPC-0200-37-02SMA	Multimode Fiber Patchcord, 0.37 NA, 200µm Core SMA Connectors, 2 meters in length
FPC-0300-37-02SMA	Multimode Fiber Patchcord, 0.37 NA, 300 μ m Core SMA Connectors, 2 meters in length
FPC-0400-22-02SMA	Multimode Fiber Patchcord, 0.22 NA, 400µm Core SMA Connectors, 2 meters in length
FPC-0400-37-02SMA	Multimode Fiber Patchcord, 0.37 NA, 400µm Core SMA Connectors, 2 meters in length
FPC-1000-22-02SMA	Multimode Fiber Patchcord, 0.22 NA, 1000 μ m Core SMA Connectors, 2 meters in length
FPC-1000-37-02SMA	Multimode Fiber Patchcord, 0.37 NA, 1000 μ m Core SMA Connectors, 2 meters in length
FPC-0400-22-01SMA-FC	Multimode Fiber Patchcord, 0.22NA, 400µm Core, SMA Connector one end, FC connector the other end, 1 meter in length
FPC-0200-22-02SMA-BP	Multimode Fiber Patchcord, 0.22 NA, 200 μm Core SMA Connector on one end, polished bare fiber on the other end, 2 meters in length
FPC-0200-37-02SMA-BP	Multimode Fiber Patchcord, 0.37 NA, 200 μm Core SMA Connector on one end, polished bare fiber on the other end, 2 meters in length
FPC-0400-22-02SMA-BP	Multimode Fiber Patchcord, 0.22 NA, 400 μm Core SMA Connector on one end, polished bare fiber on the other end, 2 meters in length
FPC-0400-37-02SMA-BP	Multimode Fiber Patchcord, 0.37 NA, 400 µm Core SMA Connector on one end, polished bare fiber on the other end, 2 meters in length

FURCATED FIBER BUNDLES

Part Number	Description
FFB-02-0105-22-00SMA	Furcated fiber bundle, 2x 0.22NA 105µm core fiber, 1 meter each, total length 2 meters, SMA connec- tors.
FFB-02-0200-22-00SMA	Furcated fiber bundle, $2x 0.22NA 200 \mu m$ core fiber, 0.5 meter each, SMA connectors.
FFB-03-0400-22-00SMA-1Q	Furcated fiber bundle, 3x 0.22NA 400µm core fiber, 0.5 meter each leg, 1.5 meter total length, SMA connectors on split ends, 1/4" stainless steel ferrule on common end.

MULTIMODE FIBER-OPTIC COLLIMATORS Key Fea

Fiber optic collimators are used to either couple light from free space into an optical fiber or collimate light from a fiber to form a collimated (parallel) optical beam. Fiber collimators are key components with numerous applications. For example, in spectroscopy, a fiber collimator can collect light in a narrow field of view into a fiber which is in turn connected to a spectrometer. In another example one fiber collimator is connected to a light source and the collimated beam passes through a cuvette. On the other side of cuvette a second fiber collimator collects light and sends it to the spectrometer.

- Key Features
- BK7 lens, 350nm to 2,000nm
- UV fused silica, 185 to 2,100nm
- Adjustable focus
- Stainless steel construction
- Multiple mounting
- features for lab and OEM applications
- SMA fiber connector

To maximize transmission wavelength range, Mightex fiber collimators feature a single BK7 lens without optical coating. In the UV collimators, a UV fused silica

lens is used instead. The collimators have a stainless housing for maximum durability. Fiber patchcords with fiber core diameter of up to 1500µm can be connected to the fiber collimator through the SMA connector. The M12x0.5 external thread or the 13mm-diameter barrel can be used to mount the fiber collimators in a system setup.

The full field of view (FOV) or full divergence angle can be calculated as FOV = 2atan(D/2f) where D is the fiber core diameter and f is the focal length of the lens. Alternatively, the linear field of view on an object placed a distance L away from the collimator is D(L/f).

MODELS

Fiber-optic Collimators

FOC-010-006-U | UV FOC-010-006-V | Visible FOC-050-023-U | UV



PERFORMANCE SPECIFICATIONS

Part Number	Focal Length mm	Clear Aperture mm	F#/NA	Lens Material	Wavelength Range nm	Connector
FOC-010-006-V	10	6	1.7/0/29	BK7	350-2,000	SMA
FOC-010-006-U	10	6	1.7/0.29	UV fused silica	185-2,100	SMA
FOC-050-023-U	50	23	1.7/0.29	UV fused silica	185-2,100	SMA

FOCUSING MODULES FOR FIBER-OPTIC COLLIMATORS

Focusing Modules |

ACC-FOC-FM010-V | BK7, 350-2000nm, focal length 10mm ACC-FOC-FM010-U | UV fused silica, 185-2100nm, focal length 10mm





FIBER ADAPTERS

Part Number	Description
FPC-ADP-SMA-SMA	SMA-to-SMA fiber adapter for connecting two SMA connectorized fibers.
FPC-ADP-C-SMA	C-to-SMA fiber adapter for connecting a SMA connectorized fiber to a C-mount lens or a microscope.
FPC-PRB-C-SMA-U	Spectroscopy probe for C-mount camera ports on microscopes. Field of view 4mm in diameter at 1X mag- nification. Accepts SMA-connectorized fiber. Wavelength range 185nm - 2100nm.
FPC-PRB-C-SMA-V	Spectroscopy probe for C-mount camera ports on microscopes. Field of view 4mm in diameter at 1X mag- nification. Accepts SMA-connectorized fiber. Wavelength range 350nm - 2000nm
SMA adapter	SMA adapter for FCS Type-H sources

BEAM COMBINERS FOR COLLIMATED LEDS Key Features

Mightex beam combiners combine two LED collimators of different wavelengths into a single collimated beam. Multiple combiners can be cascaded to combine more than two LED collimator sources. At the heart of the beam combiner is a high-performance dichroic beam splitter that combines two wavelengths with >95% efficiency. A neutral beam splitter is also available as a lower-cost solution for applications where maximum light throughput is not required.

Each input port features a fine 2-axis tilt adjustment to allow precise alignment of the LED collimator sources relative to system optical axis. A robust locking mechanism is also provided to maintain alignment over time. A filter well is integrated into each input port so that a ϕ 1" or ϕ 25mm optical filter can be inserted in between the LED source and the beam splitter. Narrowband filters and polarizers may be used to clean up LED spectrum or change the polarization state of the output beam.

- Cascadable for more than 2 sources
- Precision locking tilt adjustment on each port
- High effciency dichroic beam splitters
- Low-cost neutral beam splitters available
- Integrated filter well for each beam
- Multiple mounting features for lab and OEM applications
- Microscope adapters available

The beam combiner includes multiple mounting holes and threads so that it can be easily integrated into a system. Additionally, adapters are also available for major brands of microscopes. Beam combiners are characterized by the edge wavelengths of their dichroic beam splitters. Please use the following table to select the correct beam combiner for intended LED collimator source.

Currently, Mightex's beam combiners can only be used to directly combine 22mm-diameter Collimated LED Sources. For 11mm-diameter collimated LED sources, a mechanical adapter (P/N: ACC-BC25-011) can be used to attach the LED sources to the beam combiners, before the 11mm-diameter collimated LED sources can be combined.

MODELS

Beam Combiners for Collimated LEDs |

LCS-BC25-xxxx



PERFORMANCE SPECIFICATIONS

Part Number	Reflection Port (LED center wavelength)	%R	Transmission Port (LED center wavelength)	%Т
LCS-BC25-0350	255 - 325nm	>95	365 - 780nm	>95
LCS-BC25-0365	255 - 340nm	>95	380 - 505nm	>95
LCS-BC25-0375	325-365nm	>95	380 - 950nm	>93
LCS-BC25-0390	365 - 375nm	>95	400 - 500nm	>95
LCS-BC25-0400	340 - 385nm	>95	455 - 940nm	>95
LCS-BC25-0409	340 - 400nm	>95	415 - 940nm	>95
LCS-BC25-0410	365 - 400nm	>95	420 - 850nm	>95
LCS-BC25-0425	365 - 415nm	>95	455 - 850nm	>95
LCS-BC25-0435	325 - 425nm	>95	455 - 850nm	>95
LCS-BC25-0440	365 - 425nm	>95	470 - 740nm	>95
LCS-BC25-0460	400 - 425nm	>95	470 - 657nm	>95
LCS-BC25-0480	340 - 470nm	>95	505 - 850nm	>95
LCS-BC25-0495	400 - 470nm	>95	530 - 657nm	>95
LCS-BC25-0505	420 - 470nm	>95	530 - 740nm	>95
LCS-BC25-0506	365 - 490nm	>95	530 - 940nm	>95
LCS-BC25-0515	365 - 505nm	>95	530 - 850nm	>95
LCS-BC25-0520	455 - 505nm	>95	590 - 740nm	>95
LCS-BC25-0550	365 - 530nm	>95	590 - 850nm	>95
LCS-BC25-0560	470 - 530nm	>95	590 - 740nm	>95
LCS-BC25-0595	505 - 530nm	>95	617 - 850nm	>95
LCS-BC25-0605	365 - 590nm	>95	617 - 850nm	>95
LCS-BC25-0635	470 - 625nm	>95	657 - 940nm	>95
LCS-BC25-0660	590 - 630nm	>95	680 - 850nm	>95
LCS-BC25-0685	590 - 657nm	>95	700 - 850nm	>95
LCS-BC25-0700	530 - 680nm	>95	720 - 810nm	>95
LCS-BC25-0760	455 - 740nm	>95	780 - 980nm	>95
LCS-BC25-0800	455 - 780nm	>95	850 - 980nm	>95
LCS-BC25-0810	740, 780nm	>95	850, 940, 980nm	>95
LCS-BC25-0875	350-850 nm	>95	940-1600 nm	>95
LCS-BC25-0000	400 - 657nm, white	~50	400 - 657nm, white	~50
LCS-BC25-0001	340 - 940nm, white	~50	340 - 940nm, white	~50
LCS-BC25-0002	250 - 450nm	~50	250 - 450nm	~50
LCS-BC25-0070	400 - 657nm, white	~30	400 - 657nm, white	~70
LCS-BC25-9999	Mechanical holder only. No dichronic beam splitter.	N/A	Mechanical holder only. No dichronic beam splitter.	N/A

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CONNECTING PLATES FOR BEAM COMBINERS

Connecting Plate 1

ACC-BC25-CP-01

Connecting Plate 2

ACC-BC25-CP-02

Connecting Plate 3

ACC-BC25-CP-03

PUSH-PULL ADJUSTABLE MOUNT FOR BEAM COMBINERS

Push-Pull Adjustable Mount |

ACC-LCS-BC25-PPM

MICROSCOPE ADAPTERS

MODELS

Adapter for Leica DMI microscope

ACC-BC25-LC1

Adapter for Nikon Eclipse microscope

ACC-BC25-NK1

Adapters for Olympus IX & BX microscopes |

ACC-BC25-OL1 | Adapter to connect LCS-BC25













Adapter for Olympus MLS products |

ACC-BC25-OL2

Adapter for Zeiss Axioskop microscope |

ACC-BC25-NK1

Adapter for transmission port of Nikon Eclipse & Nikon LV-UEPI/2/A illuminators |

ACC-BC25-NK-LV-UEPI

COLLIMATED LED FOCUSING MODULES

Part Number	Description
ACC-LCS-F-11	Focusing Module for 11mm-clear-aperture LED Collimator Sources, Working Distance ~5mm.
ACC-LCS-F-22	Focusing Module for 22mm-clear-aperture LED Collimator Sources, Working Distance ~10mm.
ACC-LCS-F-22-50	Focusing Module for 22mm-clear-aperture LED Collimator Sources, Working Distance ~50mm.
ACC-LCS-F-22-100	Focusing Module for 22mm-clear-aperture LED Collimator Sources, Working Distance ~100mm.
ACC-LCS-F-38	Focusing Module for 38mm-clear-aperture LED Collimator Sources, Working Distance ~20mm.
ACC-LCS-F-48	Focusing Module for 48mm-clear-aperture LED Collimator Sources. Working Distance ~30mm.

INTERCHANGEABLE COLLIMATING LENSES

Part Number	Description
ACC-LCS-C-11	Additional interchangeable collimating lens with barrel, clear aperture 11mm.
ACC-LCS-C-11-B	Additional interchangeable collimating lens with barrel, clear aperture 11mm, for type-B light sources.
ACC-LCS-C-22	Additional interchangeable collimating lens with barrel, clear aperture 22mm.
ACC-LCS-C-22-B	Additional interchangeable collimating lens with barrel, clear aperture 22mm, for type-B light sources.
ACC-LCS-C-38	Additional interchangeable collimating lens with barrel, clear aperture 38mm.
ACC-LCS-C-38-B	Additional interchangeable collimating lens with barrel, clear aperture 38mm, for type-B light sources.
ACC-LCS-C-48	Additional interchangeable collimating lens with barrel, clear aperture 48mm.
ACC-LCS-C-48-B	Additional interchangeable collimating lens with barrel, clear aperture 48mm, for type-B light sources.

EMPTY FILTER/OPTICS HOLDER FOR LCS SOURCES

Part Number	Description
ACC-LCS-H-22	Empty filter/optics holder for 22mm-clear-aperture LED Collimator Sources, accepts 1" and 25mm-diame- ter filters or optics with thickness of 5mm of less.





COLLIMATED LED CONNECTOR TUBES

Part Number	Description
ACC-LCS-CMM	Male to Male C-Mount connector with inner threads.
ACC-LCS-CFF	Female to Female C-Mount connector with outer threads.
ACC-LCS-22-T15	15mm extension tube for 22-mm clear-aperture LCS light sources.

LIGHTGUIDE COLLIMATORS

Lightguide collimators are used to either couple light from free space into a lightguide or collimate light from a lightguide to form a collimated (parallel) optical beam. Lightguide collimators are key components with numerous applications. For example, a lightguide collimator can project light from a lightguide into a uniform spot in free space.

Key Features

Aspherical lens Adjustable focus with locking ring Accepts various ferrule diameters

High-numerical-aperture aspherical lenses are used for precise collimation and

maximum light throughput. The collimator features adjustable focus from 100mm to infinity. Various lightguide ferrule diameters are supported. Customization is available for other ferrule diameters.

The full field of view (FOV) or full divergence angle can be calculated as FOV = 2atan(D/2f), where D is the lightguide core diameter and f is the focal length of the lens. Alternatively, the linear field of view on an object placed at a distance L away from the collimator is D(L/f).

MODELS

Lightguide Collimators |

LGC-019-022-05-V LGC-019-022-07-V LGC-019-022-11-V LGC-019-022-1Q-V LGC-019-023-05-U

PERFORMANCE SPECIFICATIONS

Part Number	Focal Length mm	Clear Aperture mm	F# / NA	Lens Material	Wavelength Range nm	Lightguide Ferrule, OD1
LGC-019-022-05-V	19	22	0.86 / 0.5	B270	350 ~ 2,000	5mm
LGC-019-022-07-V	19	22	0.86 / 0.5	B270	350 ~ 2,000	7mm
LGC-019-022-11-V	19	22	0.86 / 0.5	B270	350 ~ 2,000	11mm
LGC-019-022-1Q-V	19	22	0.86 / 0.5	B270	350 ~ 2,000	6.35mm
LGC-019-023-05-U	19	23	0.83 / 0.6	Fused Silica	200 ~ 2,200	5mm



LED Light Sources

LIGHTGUIDE-COUPLED LED ACCESSORIES

Part Number	Description
ACC-GCS-A0510	Adapter for a lightguide with ferrule diameter of 5mm and ferrule length of 10mm or greater.
ACC-GCS-A0610	Adapter for a lightguide with ferrule diameter of 6mm and ferrule length of 10mm or greater.
ACC-GCS-A0710	Adapter for a lightguide with ferrule diameter of 7mm and ferrule length of 10mm or greater.
ACC-GCS-A0810	Adapter for a lightguide with ferrule diameter of 8mm and ferrule length of 10mm or greater.
ACC-GCS-A0515	Adapter for lightguide with ferrule diameter of 5mm and ferrule length of 15mm or greater, for Type-B GCS only.
ACC-GCS-A0715	Adapter for lightguide with ferrule diameter of 7mm and ferrule length of 15mm or greater, for Type-B GCS only.
ACC-GCS-A0815	Adapter for lightguide with ferrule diameter of 8mm and ferrule length of 15mm or greater, for Type-B GCS only.
ACC-GCS-A1015	Adapter for lightguide with ferrule diameter of 10mm and ferrule length of 15mm or greater, for Type-B GCS only.

LIQUID LIGHTGUIDES

Part Number	Description
LLG-03-59-300-0650-1	Liquid lightguide, 3mm core, 0.59NA, 300 - 650nm, 1 meter. (Ferrule diameter: 5mm)
LLG-03-59-300-0650-2	Liquid lightguide, 3mm core, 0.59NA, 300 - 650nm, 2 meters. (Ferrule diameter: 5mm)
LLG-03-59-340-0800-1	Liquid lightguide, 3mm core, 0.59NA, 340 - 800nm, 1 meter. (Ferrule diameter: 5mm)
LLG-03-59-340-0800-2	Liquid lightguide, 3mm core, 0.59NA, 340 - 800nm, 2 meters. (Ferrule diameter: 5mm)
LLG-03-59-420-2000-1	Liquid lightguide, 3mm core, 0.59NA, 420 - 2,000nm, 1 meter. (Ferrule diameter: 5mm)
LLG-03-59-420-2000-2	Liquid lightguide, 3mm core, 0.59NA, 420 - 2,000nm, 2 meters. (Ferrule diameter: 5mm)
LLG-05-59-340-0800-1	Liquid lightguide, 5mm core, 0.59NA, 340 - 800nm, 1 meter. (Ferrule diameter: 7mm)
LLG-05-59-420-2000-1	Liquid lightguide, 5mm core, 0.59NA, 420 - 2,000nm, 1 meter. (Ferrule diameter: 7mm)

LIGHTGUIDE ADAPTERS FOR LED SOURCES

Part Number	Description
LCS-LGA23-0515	Lightguide adapter for 23mm-diameter DUV LED collimator source. For light guide with ferrule diameter of 5mm (typical 3mm-core light guide) and ferrule length of 15mm or more. Transmission range 200nm – 2200nm.
LCS-LGA22-0715	Lightguide adapter for 22mm-diameter LED collimator source and beam combiner. For lightguide with ferrule diameter of 7mm (typical 5mm-core lightguide) and ferrule length of 15mm or greater.
LCS-LGA22-0515	Lightguide adapter for 22mm-diameter LED collimator source and beam combiner. For lightguide with ferrule diameter of 5mm (typical 3mm-core lightguide) and ferrule length of 15mm or greater.
LCS-LGA22-0715	Lightguide adapter for 22mm-diameter LED collimator source and beam combiner. For lightguide with ferrule diameter of 7mm (typical 5mm-core lightguide) and ferrule length of 15mm or greater.
LCS-LGA22-0Q15	Lightguide adapter for 22mm LED collimator source and beam combiner. For lightguide with ferrule diameter of 0.25"(6.35mm) and ferrule length of 15mm or greater.
LCS-LGA22-1115	Lightguide adapter for 22mm LED collimator source and beam combiner. For lightguide with ferrule diameter of 11.1mm and ferrule length of 15mm or greater.

LIQUID LIGHTGUIDE HEAT SINKS Part Number Description

ACC-LLG-HS-03	Heatsink for 3mm core liquid lightguides.

SLS SPOTLIGHTS HEAT SINKS

Part Number	Description
ACC-SLS-HS	This is an accessory for Mightex's LED Spotlights, used to assist heat dissipation in order to avoid overheat.