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High Power Fiber-Coupled LED Light Sources (UV, VIS and NIR)

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.



PERFORMANCE SPECIFICATIONS

Wavelength Code	Description	Peak Wavelength (nm)	I _{op} (mA)	V _{op} (V)	Radiant Flux ¹ (mW)
0000	Cool White	5500K	1000	3.9	3.2
0001	Warm White	3400K	1000	3.9	3.2
0365	UV 365nm	365	500	3.8	3.1
0385	UV 385nm	385	500	3.8	3.4
0400	UV 400nm	400	350	3.5	0.8
0455	Royal Blue	455	1000	3.9	5.6
0470	Blue	470	1000	3.9	4.3
0505	Cyan	505	1000	3.9	1.0
0530	Green	530	1000	3.9	2.0
0590	Amber	590	1000	3.2	1.2
0617	Red-Orange	617	1000	3.0	6.5
0625	Red	625	1000	3.0	6.5
0657	Deep Red	657	350	2.4	1.0
0740	NIR	740	350	2.1	1.5
0850	NIR	850	1000	2.1	4.0
0940	NIR	940	1000	2.4	4.0

Note: * - With 400µm-core 0.22 numerical aperture (NA) fiber. Output optical power scales approximately linearly with fiber core area and NA².

High Power Light-Guide Coupled LED Light Sources (UV, VIS and NIR)

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



Note: Liquid light guide not included.

PERFORMANCE SPECIFICATIONS

Wavelength Code	Description	Peak Wavelength (nm)	I _{op} (mA)	V _{op} (V)	Radiant Flux ¹ (mW)
0000	Cool White	5500K	1000	3.9	95
0001	Warm White	3400K	1000	3.9	95
0365	UV 365nm	365	500	3.8	90
0385	UV 385nm	385	500	3.8	100
0455	Royal Blue	455	1000	3.9	165
0470	Blue	470	1000	3.9	130
0505	Cyan	505	1000	3.9	30
0530	Green	530	1000	3.9	60
0590	Amber	590	1000	3.2	35
0617	Red-Orange	617	1000	3.0	200
0625	Red	625	1000	3.0	200
0850	NIR	850	1000	2.1	125
0940	NIR	940	1000	2.4	125

Note: 1 - Measured at exiting end of a 3mm-core 0.59 numerical aperture (NA) liquid light guide.

High Power LED Collimator Sources

A LED collimator consists of a collimating lens and a LED emitter. The LED emitter is placed at the focal plane of the collimating lens which 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 where as the lens aperture on the collimator where intensity is uniform will be projected onto the object. In other illumination applications 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 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.

The LED collimators include a 1-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.



PERFORMANCE SPECIFICATIONS

Part Number	Wavelength	Diverging Angle (deg.)	I _{op} (mA)	V _{op} (V)	Output Power (mW)
LCS-0365-02-22	365	+/-1.7	500	3.8	80
LCS-0385-02-22	385	+/-1.7	500	3.8	100
LCS-0400-01-22	400	+/-2.5	350	3.5	100
LCS-0455-03-22	455	+/-1.7	1000	3.9	280
LCS-0455-05-22	455	+/-5.0	700	6.8	350
LCS-0470-03-22	470	+/-1.7	1000	3.9	200
LCS-0470-05-22	470	+/-5.0	700	6.8	250
LCS-0505-03-22	505	+/-1.7	1000	3.9	135
LCS-0505-05-22	505	+/-5.0	700	6.8	170
LCS-0530-03-22	530	+/-1.7	1000	3.9	100
LCS-0530-05-22	530	+/-5.0	700	6.8	125
LCS-0590-03-22	590	+/-1.7	1000	3.9	65
LCS-0617-03-22	617	+/-1.7	1000	3.9	280
LCS-0625-03-22	625	+/-1.7	1000	3.9	280
LCS-0657-01-22	657	+/-2.5	350	2.4	100
LCS-0740-01-22	740	+/-2.5	350	2.2	65
LCS-0850-02-22	850	+/-2.5	1000	2.1	175
LCS-0940-01-22	940	+/-1.7	700	1.5	100
LCS-5500-03-22	cool white 5500K	+/-1.7	1000	3.9	170
LCS-4000-03-22	warm white 4000K	+/-1.7	1000	3.9	180

Low-Cost LED Spot Lights

High-power LEDs are a new class of light sources that have numerous applications in industry, consumer, medical, and scientific fields. However, engineers and scientists often find that they have to design and fabricate heat sinks and 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. Sirius™ compact high-power light sources 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. Sirius™ light sources can be driven by Mightex's SLC-series multi-channel LED drivers or other LED drivers and



PERFORMANCE SPECIFICATIONS

Table 1. LED Emitter Specifications

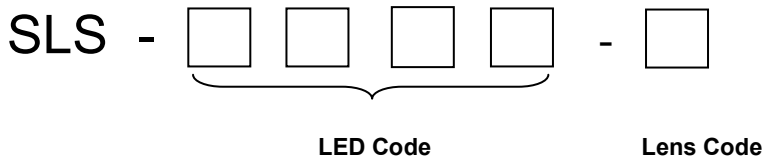
LED Code	Description	Peak Wavelength (nm)	I _{op} (mA)	V _{op} (V)	Luminous Flux (lm)
0100	1W White LED	5500K	350	3.4	45
0109	1W UV	395-410	350	3.5	180 mW
0101	1W Royal Blue	455	350	3.4	220 mW
0102	1W Blue	470	350	3.4	16
0103	1W Cyan	505	350	3.4	45
0104	1W Green	530	350	3.4	53
0105	1W Amber	590	350	3.0	42
0106	1W Red-Orange	617	350	3.0	55
0107	1W Red	625	350	3.0	44
0110	1W Deep Red	657	350	2.4	170mW
0111	1W 740nm	740	350	2.2	120mW
0112	1W 940nm	940	700	1.5	180mW
0300	3W White LED	5500K	1000	3.9	80
0309	3W UV	395-410	700	3.5	350 mW
0301	3W Royal Blue	455	1000	3.9	450 mW
0302	3W Blue	470	1000	3.9	30
0303	3W Cyan	505	1000	3.9	80
0304	3W Green	530	1000	3.9	80
0305	3W Amber	590	1400	3.0	110
0306	3W Red-Orange	617	1400	3.0	190
0307	3W Red	625	1400	3.0	140
0208	2.4W Near Infrared	850	1000	1.8~2.4	375 mW
0501	5W Royal Blue	455	1000	6.8	700 mW
0502	5W Blue	470	700	6.8	48
0503	5W Cyan	505	1000	6.8	160
0504	5W Green	530	1000	6.8	160

Low-cost LED Spot Lights (Cont'd)

Table 2. Collecting Optics Specifications

LENS Code	Description	Clear Aperture (mm)	X- Half Angle (degree)	Y- Half Angle (degree)	Efficiency (%)
A	Narrow Beam	19	5	5	85
B	Medium Beam	19	15	15	85
C	Wide Beam	19	25	25	85
D	Oval Beam	19	5	20	85
E ¹	Fiber Bundle Coupling	19	7mm full field	7mm full field	85

Part Number and Ordering Information



For example, SLS-0104-B is a light source with a 1W green emitter and 15-degree collecting optics.

With a world-class OEM design team, Mightex offers a broad range of customized solutions in order to meet individual customer's unique requirements. Please call 1-416-840 4991 or email

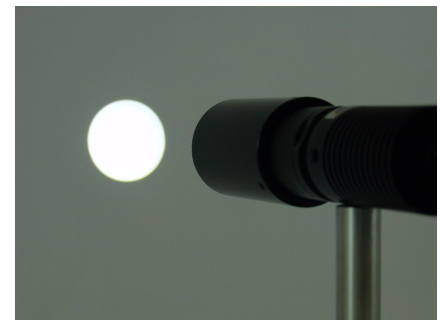
Precision LED Spot Lights

Mightex precision LED spotlight consists of a state-of-the-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 general-purpose 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. With the standard projection lens spot diameter is linearly proportional to 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.

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.



PERFORMANCE SPECIFICATIONS

Part Number	Wavelength (nm)	I _{op} (mA)	V _{op} (V)	Output Power (mW)
PLS-0365-030-S	365	500	3.8	50
PLS-0385-030-S	385	500	3.8	50
PLS-0400-030-S	400	350	3.5	50
PLS-0455-030-S	455	1000	3.9	150
PLS-0470-030-S	470	1000	3.9	110
PLS-0505-030-S	505	1000	3.9	65
PLS-0530-030-S	530	1000	3.9	50
PLS-0590-030-S	590	1000	3.9	35
PLS-0617-030-S	617	1000	3.9	150
PLS-0625-030-S	625	1000	3.9	150
PLS-0657-030-S	657	350	2.4	50
PLS-0740-030-S	740	350	2.2	35
PLS-0850-030-S	850	1000	2.1	85
PLS-0940-030-S	940	700	1.5	50
PLS-5500-030-S	cool white 5500K	1000	3.9	85
PLS-4000-030-S	warm white 4000K	1000	3.9	85

Spectrum Synthesizing Sources (“Cubic-S”)

Many applications, such as microscopy, multi-spectral imaging, LCD display characterization, detector calibration, and color measurement etc., can benefit tremendously from a light source with an arbitrarily programmable optical spectrum. As apposed to conventional tunable lasers, which only produce a single wavelength at a time, Mightex Optical Spectrum Synthesizing Source (“Cubic-S”) is capable of dynamically generating any custom-specified target spectrum across the entire spectral range.



PRODUCT DESCRIPTION

As illustrated in Figure-1, 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.

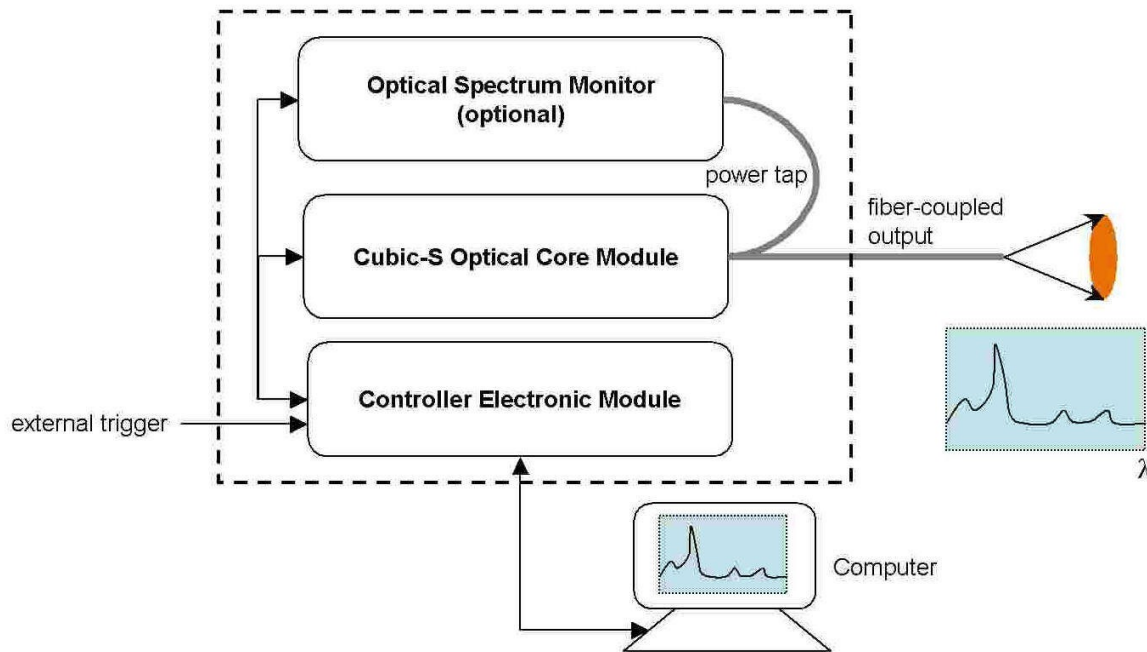


Figure 1 - Schematic diagram of Cubic-S.

Mightex’s Cubic-S is controlled through a powerful PC-based application software with GUI. A software development kit (SDK) is also included, making it easy to integrate the Cubic-S into customers’ own applications.

For more details regarding this product please call 1-416-840-4991 or email sales@mightex.com.