



## High Power Liquid Lightguide-Coupled LED Light Sources



# HIGH POWER LIQUID LIGHTGUIDE-COUPLED LED LIGHT SOURCES

**M**ightex 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. GCS 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 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.

## 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

## APPLICATIONS

- Microscopy
- Fluorescence
- Sensors
- Medical imaging
- Semiconductor equipment
- Testing instruments
- Medical instruments
- Machine vision

## PERFORMANCE SPECIFICATIONS

### Type A GCS | *passive cooling*



Part Number <sup>1</sup>	Description	Nominal Wavelength (nm)	I <sub>op</sub> (mA)	V <sub>op</sub> (V)	Typical Radiant Flux <sup>2,3</sup> (mW)
GCS-0310-03-xxxxx	DUV 310nm	310	600	5.8	24
GCS-0325-03-xxxxx	UV 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	80
GCS-0385-04-xxxxx	UV 385nm	385	1000	3.65	300
GCS-0390-03-xxxxx	UV 390nm	390	1000	3.1	165
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	410nm	410	1000	3	210
GCS-0415-03-xxxxx	415nm	415	1000	3	210



Type A GCS | *continued*

Part Number <sup>1</sup>	Description	Nominal Wavelength (nm)	I <sub>op</sub> (mA)	V <sub>op</sub> (V)	Typical Radiant Flux <sup>2,3</sup> (mW)
GSC-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	3.5	85
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	3	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-0910-02-xxxxx	910nm	910	1000	1.9	80
GCS-0940-02-xxxxx	940nm	940	1000	2.4	125
GCS-0980-01-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

<sup>1</sup> xxxxx is the Lightguide Adapter code. Please see Table 1 on page 3.

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

<sup>3</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.

Type B GCS | *fan cooling*

Part Number <sup>1</sup>	Description	Nominal Wavelength (nm)	I <sub>op</sub> (mA)	V <sub>op</sub> (V)	Typical Radiant Flux <sup>2,3</sup> (mW)
GCS-0365-13-xxxxx	UV 365nm, 13W	365	3500	3.85	950
GCS-0385-07-xxxxx	UV 385nm, 7W	385	500	15	330
GCS-0385-11-xxxxx	UV 385nm, 11W	385	700	15.5	410
GCS-0385-13-xxxxx	UV 385nm, 13W	385	3500	3.75	1180
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



### Type B GCS | *continued*

Part Number <sup>1</sup>	Description	Nominal Wavelength (nm)	I <sub>op</sub> (mA)	V <sub>op</sub> (V)	Typical Radiant Flux <sup>2,3</sup> (mW)
GCS-0625-07-xxxxx	Red, 7W	625	700	9.6	200
GCS-3000-12-xxxxx	Warm White, 12W	3,000K	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

<sup>1</sup> xxxxx is the Lightguide Adapter code. Please see Table 1 on page 3.

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

<sup>3</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.

\* 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 <sup>1</sup>	Description	Nominal Wavelength (nm)	I <sub>op</sub> (mA)	V <sub>op</sub> (V)	Typical Radiant Flux <sup>2,3</sup> (mW)
GCS-0365-76-xxxxx	UV 365nm, 50W	365	18	4.2	2600
GCS-0405-65-xxxxx	UV 405nm, 65W	405	18	3.6	1600
GCS-0415-65-xxxxx	Blue-Violet 415nm, 65W	415	18	3.6	1900
GCS-0470-50-xxxxx	Blue, 50W	470	13	3.8	2000
GCS-0470-61-xxxxx	Blue, 60W	470	18	3.4	2400
GCS-0525-60-xxxxx	Green, 60W	525	13	4.6	800
GCS-0525-80-xxxxx	Green, 80W	525	18	4.4	950
GCS-0560-68-xxxxx	560nm, Broadband, 70W	560	18	3.8	1900
GCS-0625-38-xxxxx	Red, 38W	625	13	2.9	1700
GCS-0625-42-xxxxx	Red, 42W	625	18	2.3	2100
GCS-0730-77-xxxxx	NIR, 80W	730	18	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	18	3.7	2200

<sup>1</sup> xxxxx is the Lightguide Adapter code. Please see Table 1 on page 3.

<sup>2</sup> Maximum CW output achievable with a BLS-13000-1 BioLED control module. Measured at exiting end of a 1 meter long, 3mm-core 0.59 numerical aperture (NA) liquid light guide.

<sup>3</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.



## Discontinued Parts

Part Number <sup>1</sup>	Description	Nominal Wavelength (nm)	I <sub>op</sub> (mA)	V <sub>op</sub> (V)	Typical Radiant Flux <sup>2,3</sup> (mW)
GCS-0365-02-xxxxx	UV 365nm	365	500	3.8	90
GCS-0365-07-xxxxx	UV 365nm, 7W	365	500	15	300
GCS-0365-11-xxxxx	UV 365nm, 11W	365	700	15.8	375
GCS-0365-48-xxxxx	UV 365nm, 50W	365	12000	3.9	1300
GCS-0385-02-xxxxx	UV 385nm	385	500	3.8	100
GCS-0405-50-xxxxx	UV 405nm, 50W	405	13000	3.8	1500
GCS-0420-03-xxxxx	420nm	420	1000	3	205
GCS-0425-03-xxxxx	425nm	425	1000	3	195
GCS-0617-03-xxxxx	617nm	617	1000	3	100
GCS-0617-10-xxxxx	617nm	617	1000	10.8	175
GCS-0850-02-xxxxx	850nm	850	1000	2.1	125

<sup>1</sup> xxxxx is the Lightguide Adapter code. Please see Table 1 on page 3.

<sup>2</sup> Type-A, Type-B and Type-H LED sources have different installation drawings. Type-A does not include a cooling fan, whereas Type-B and -H does. 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. For certain LED controllers, it is not recommended to mix Type-A and Type-B LEDs on the same controller. Please check controller specification to confirm. The control module designed for Type-H light sources are BLS-13000-1E or BLS-18000-1 (sold separately), which is paired with the suitable AC/DC power adapter and does not require separate upgrade;

Maximum CW output achievable with a BLS-13000-1 BioLED control module. Measured at exiting end of a 1 meter long, 3mm-core 0.59 numerical aperture (NA) liquid light guide.

<sup>3</sup> Measured at exiting end of a 1 meter long, 3mm-core 0.59 numerical aperture (NA) liquid light guide. 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 1 | 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



## LED SPECTRA

### **MIGHTEX** LED WAVELENGTH PORTFOLIO

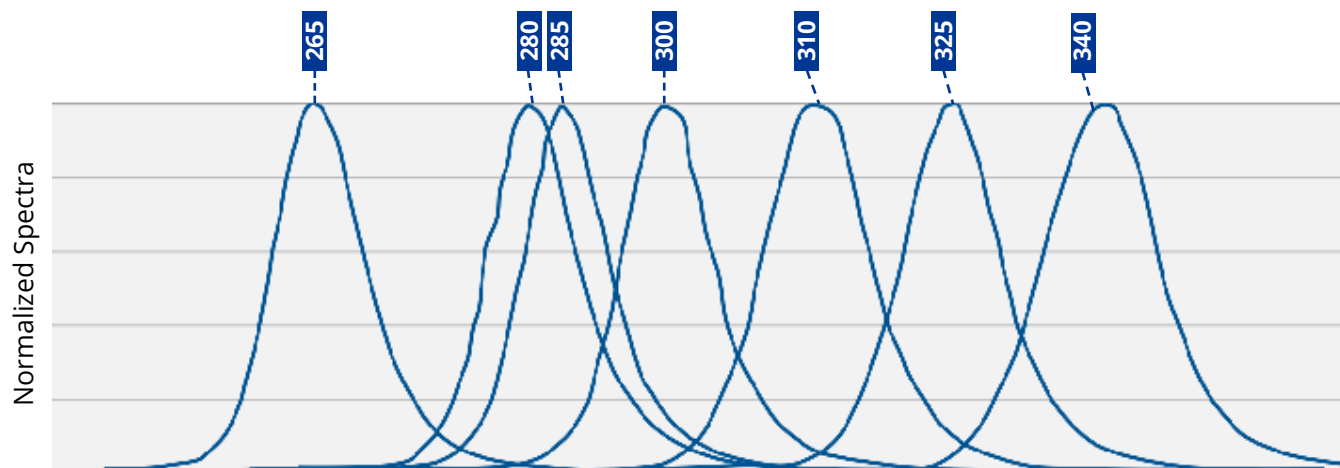
Wavelength | nm



New LED wavelengths are continually added to the portfolio. Please visit [www.mightexsystems.com](http://www.mightexsystems.com) for updated list.

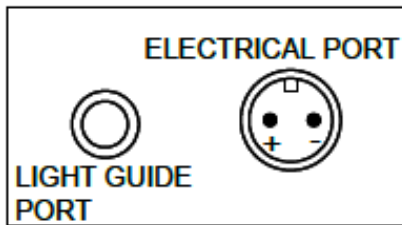
### **MIGHTEX** DUV LED WAVELENGTH PORTFOLIO

Wavelength | nm



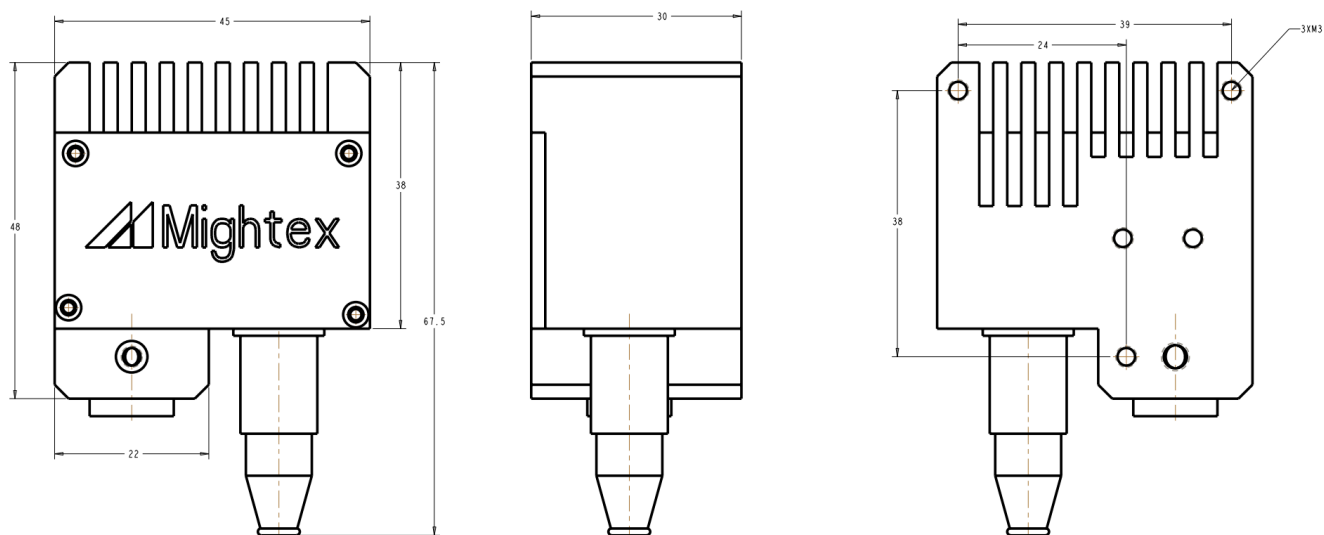
New LED wavelengths are continually added to the portfolio. Please visit [www.mightexsystems.com](http://www.mightexsystems.com) for updated list.

## ELECTRICAL PIN LAYOUT

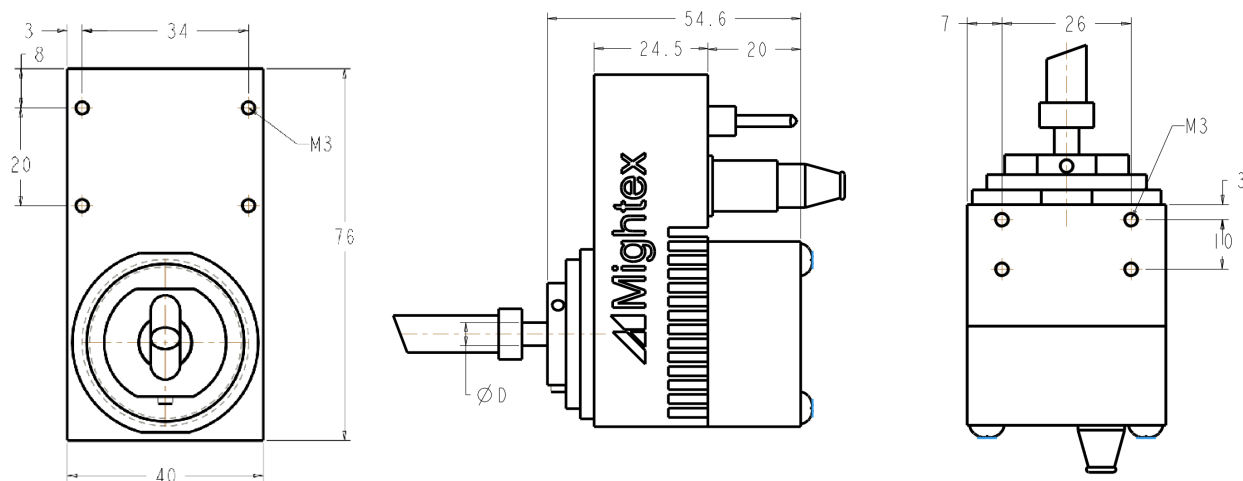


## INSTALLATION DRAWINGS

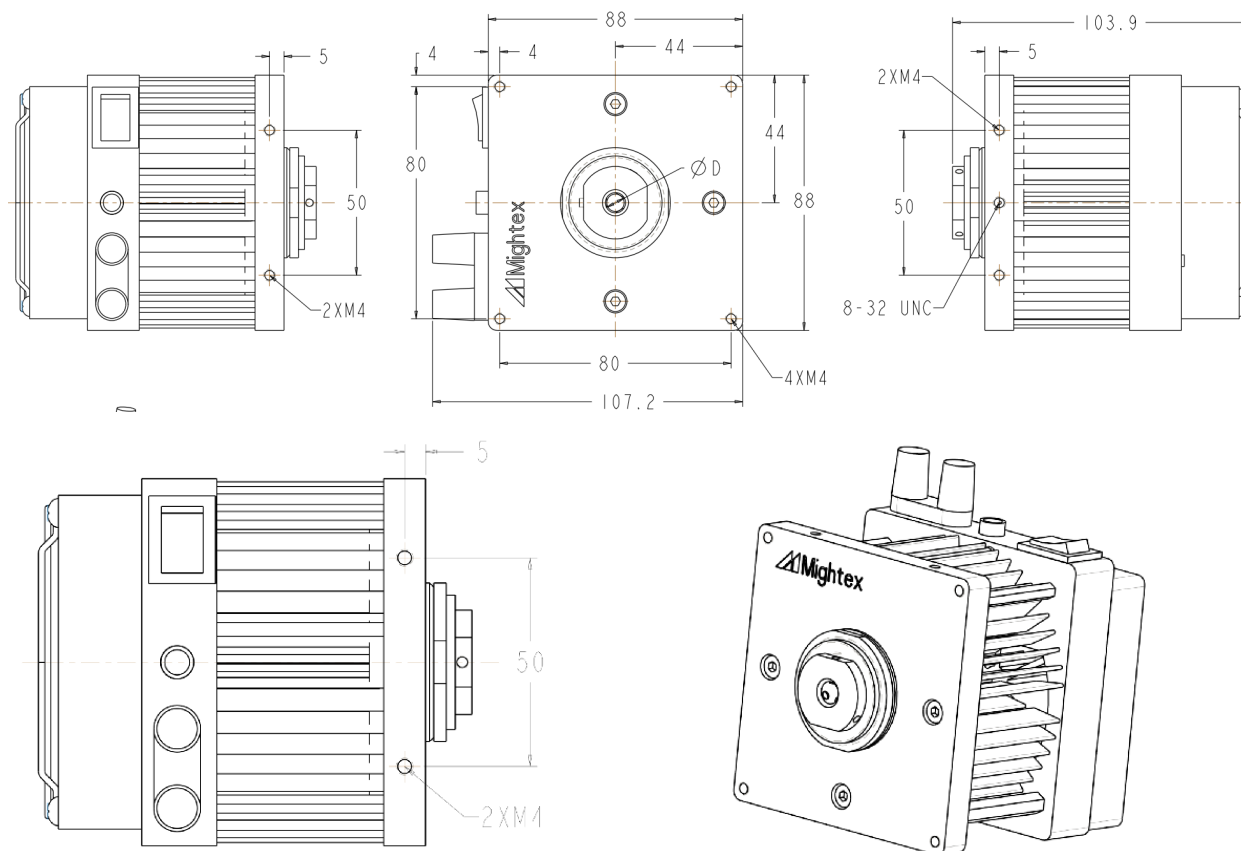
### GCS Series Lightguide Coupled LED, Type-A



### GCS Series Lightguide Coupled LED, Type-B



## GCS Series Lightguide Coupled LED, Type-H



## PART NUMBER AND ORDERING INFORMATION

**GCS** -          -      - **XXXXXX**  
 Wavelength                      Electrical                      Light Guide  
    Power                      Adaptor

For example, GCS-0470-15-A0510 is a 15W 470nm light guide coupled LED source with a standard adaptor for Mightex 3mm liquid light guide (with 5mm ferrule diameter).

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 **1-925-218 1885** or email [sales@mightex.com](mailto:sales@mightex.com) for details.





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Our primary goal is to help you find the optimal solution for your application. We have a dedicated technical support and sales team committed to providing guidance on our LED illumination and other Mightex products.

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for more information!

## CONTACT US

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