

# HIGH POWER LED COLLIMATOR SOURCES

An 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 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.

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

### Deep UV LCS



Part Number	Nominal Wavelength (nm)	Beam Diameter (mm)	Half Diverging Angle (deg.)	I <sub>op</sub> (mA)	V <sub>op</sub> (V)	Typical Output <sup>1</sup> Power (mW)
LCS-0265-02-23	265	23	1	350	6.3	20 <sup>a</sup>
LCS-0275-04-23	275	23	1	600	6	35
LCS-0280-03-23	280	23	1	500	5.8	30
LCS-0285-03-23	285	23	1	500	5.8	35

## 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)

## Deep UV LCS | *continued*

Part Number	Nominal Wavelength (nm)	Beam Diameter (mm)	Half Diverging Angle (deg.)	I <sub>op</sub> (mA)	V <sub>op</sub> (V)	Typical Output <sup>1</sup> Power (mW)
LCS-0295-03-23	295	23	1	600	5.8	25
LCS-0300-03-23	300	23	1	500	6	25
LCS-0310-03-23	310	23	1	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

<sup>1</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.

<sup>2</sup>For older units prior to August 2019, typical output power is 5mW.

## Type A LCS | *passively cooled*



Part Number	Nominal Wavelength (nm)	Half Diverging Angle (deg.)				I <sub>op</sub> (mA)	V <sub>op</sub> (V)	Typical Output Power <sup>2</sup> (mW)
		φ11mm <sup>1</sup>	φ22mm <sup>1</sup>	φ38mm <sup>1</sup>	φ48mm <sup>1</sup>			
LCS-0340-02-xx	340	3.4	1.7	1	0.75	500	4.3	23
LCS-0365-04-xx	365	6.8	3.4	2	1.5	1000	3.65	500
LCS-0380-03-xx	380	3.4	1.7	1	0.75	1000	3.2	120
LCS-0385-04-xx	385	6.8	3.4	2	1.5	1000	3.65	500
LCS-0390-03-xx	390	3.4	1.7	1	0.75	1000	3.1	250
LCS-0395-03-xx	395	3.4	1.7	1	0.75	1000	3.1	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	1	0.75	1000	3.1	265
LCS-0405-03-xx	405	3.4	1.7	1	0.75	1000	3	325
LCS-0410-03-xx	410	3.4	1.7	1	0.75	1000	3	315
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	3.9	280
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

## Type A LCS | *continued*

Part Number	Nominal Wavelength (nm)	Half Diverging Angle (deg.)				I <sub>op</sub> (mA)	V <sub>op</sub> (V)	Typical Output Power <sup>2</sup> (mW)
		φ11mm <sup>1</sup>	φ22mm <sup>1</sup>	φ38mm <sup>1</sup>	φ48mm <sup>1</sup>			
LCS-0657-01-xx	657	5	2.5	1.5	1.1	350	2.4	100
LCS-0680-02-xx	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	2.2	120
LCS-0850-02-xx	850	3.4	1.7	1	0.75	1000	2.1	240
LCS-0850-03-xx	850	3.4	1.7	1	0.75	1000	3	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	1.9	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	1.7	1	0.75	1000	3.9	170
LCS-6500-03-xx	glacier white 6,500K	3.4	1.7	1	0.75	1000	3.6	180

<sup>1</sup> Clear aperture diameter. Use these two-digit numbers to replace *xx* in the part number.

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

## Type B LCS | *fan cooling*



Part Number	Nominal Wavelength (nm)	Half Diverging Angle (deg.)				I <sub>op</sub> (mA)	V <sub>op</sub> (V)	Typical Output Power <sup>2</sup> (mW)
		φ11mm <sup>1</sup>	φ22mm <sup>1</sup>	φ38mm <sup>1</sup>	φ48mm <sup>1</sup>			
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	10	5	3	2.2	1000	16.5	810
LCS-0405-12-xx	405	6.8	3.4	2	1.5	1000	12	975

## Type B LCS | *continued*

Part Number	Nominal Wavelength (nm)	Half Diverging Angle (deg.)				I <sub>op</sub> (mA)	V <sub>op</sub> (V)	Typical Output Power <sup>2</sup> (mW)
		φ11mm <sup>1</sup>	φ22mm <sup>1</sup>	φ38mm <sup>1</sup>	φ48mm <sup>1</sup>			
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	500
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	1.5	1000	15	540

<sup>1</sup> Clear aperture diameter. Use these two-digit numbers to replace **xx** in the part number.

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

\* 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 J LCS | *high-power, passively cooled*



Part Number	Nominal Wavelength (nm)	Half Diverging Angle (deg.)				I <sub>op</sub> (mA)	V <sub>op</sub> (V)	Typical Output Power <sup>2,3</sup> (mW)
		φ11mm <sup>1</sup>	φ22mm <sup>1</sup>	φ38mm <sup>1</sup>	φ48mm <sup>1</sup>			
LCS-0470-14-22-J	470	NA	1.7	NA	NA	3000	4.6	500
LCS-0530-13-22-J	530	NA	1.4	NA	NA	2400	5.1	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

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

<sup>2</sup> Maximum CW output achievable with a BLS-3000-2 BioLED control module.

<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 H LCS | *super high-power, fan cooling*



Part Number	Nominal Wavelength (nm)	Half Diverging Angle (deg.)				I <sub>op</sub> (A)	V <sub>op</sub> (V)	Typical Output Power <sup>2,3</sup> (mW)
		φ11mm <sup>1</sup>	φ22mm <sup>1</sup>	φ38mm <sup>1</sup>	φ48mm <sup>1</sup>			
LCS-0365-48-xx	365	10	5	3	2.2	12	3.9	2000
LCS-0405-50-xx	405	10	5	3	2.2	13	3.8	2500
LCS-0470-50-xx	470	10	5	3	2.2	13	3.8	3300
LCS-0525-60-xx	525	10	5	3	2.2	13	4.6	1300
LCS-0560-68-xx	560	10	5	3	2.2	18	3.8	3500
LCS-0625-38-xx	625	10	5	3	2.2	13	2.9	1100
LCS-0730-77-xx	730	10	5	3	2.2	18	5.9	3500
LCS-6500-33-xx	glacier white, 6,500K	10	5	3	2.2	9	3.7	2000
LCS-6500-65-xx	glacier white, 6,500K	10	5	3	2.2	18	3.7	3500

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

<sup>2</sup> Maximum CW output achievable with a matching BLS-13000-1 or a BLS-18000-1 BioLED control module.

<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.

# LED SPECTRA

## **MIGHTEX** LED WAVELENGTH PORTFOLIO

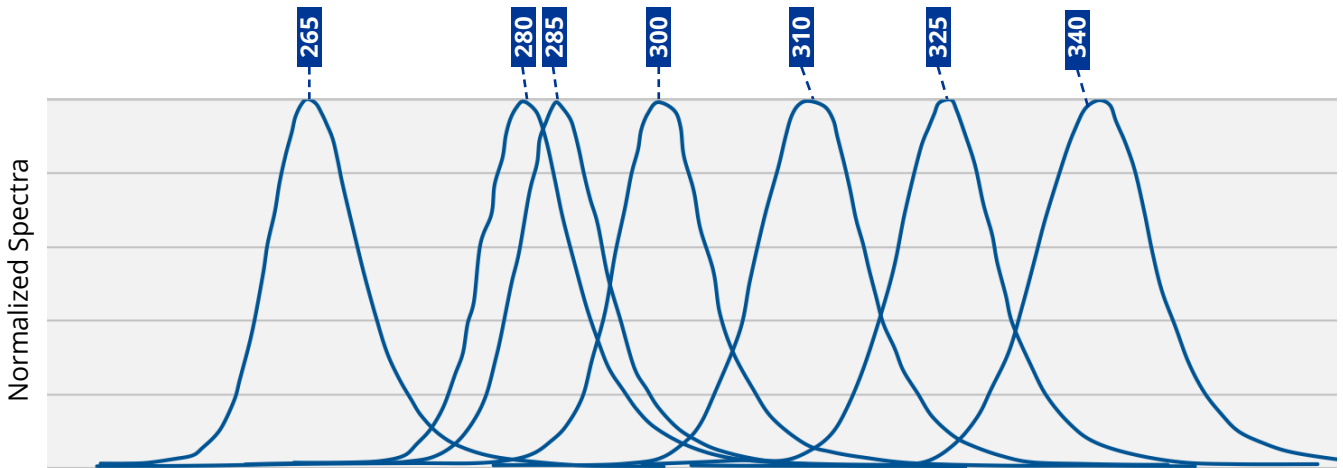
Wavelength | nm



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

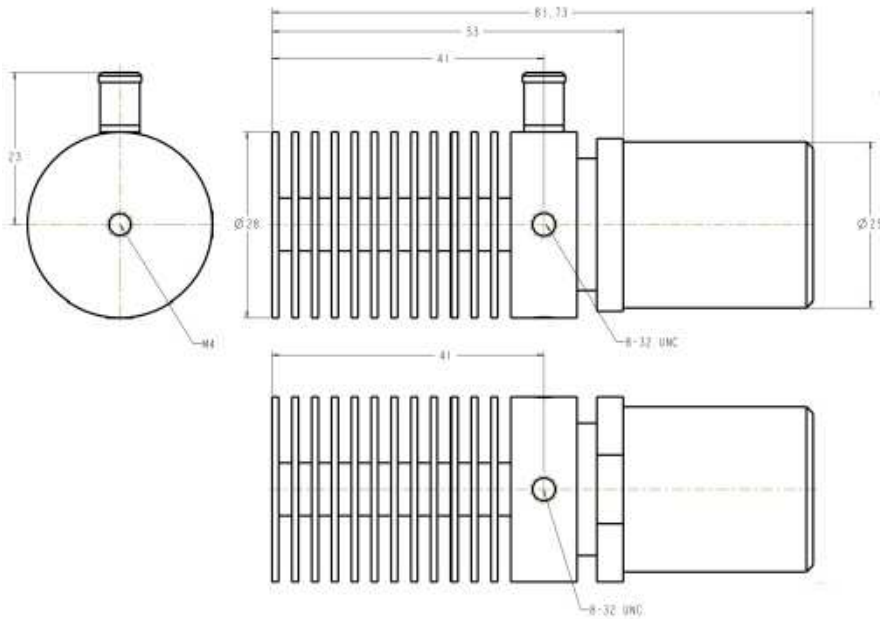


New LED wavelengths are continually added to the portfolio. Please visit [www.mightexsystems.com](http://www.mightexsystems.com) for updated list.

# INSTALLATION DRAWINGS

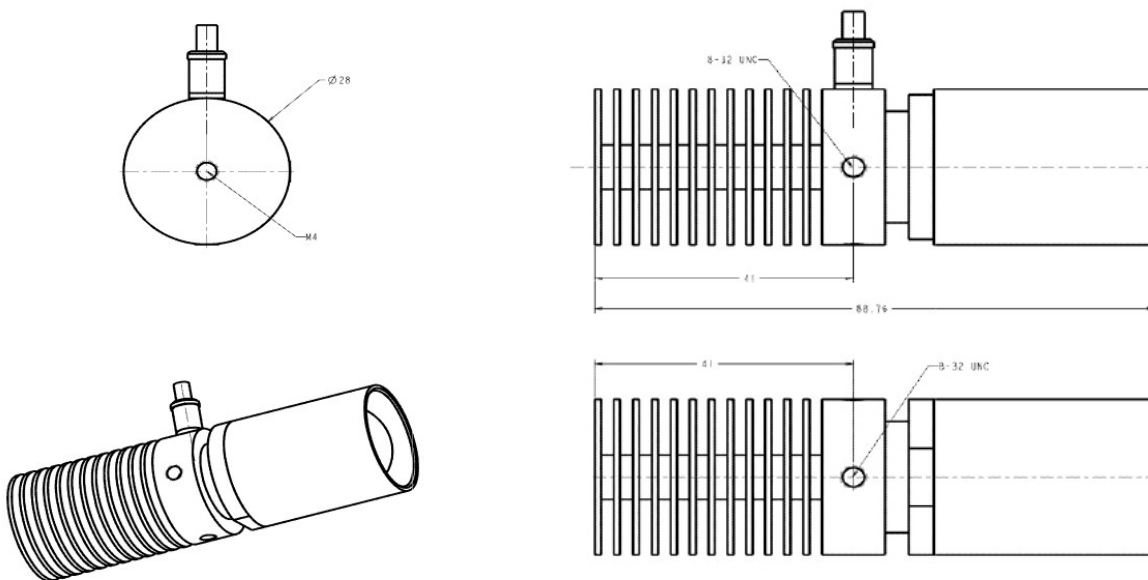
## Installation Drawing for 11-mm LED Collimator, Type-A

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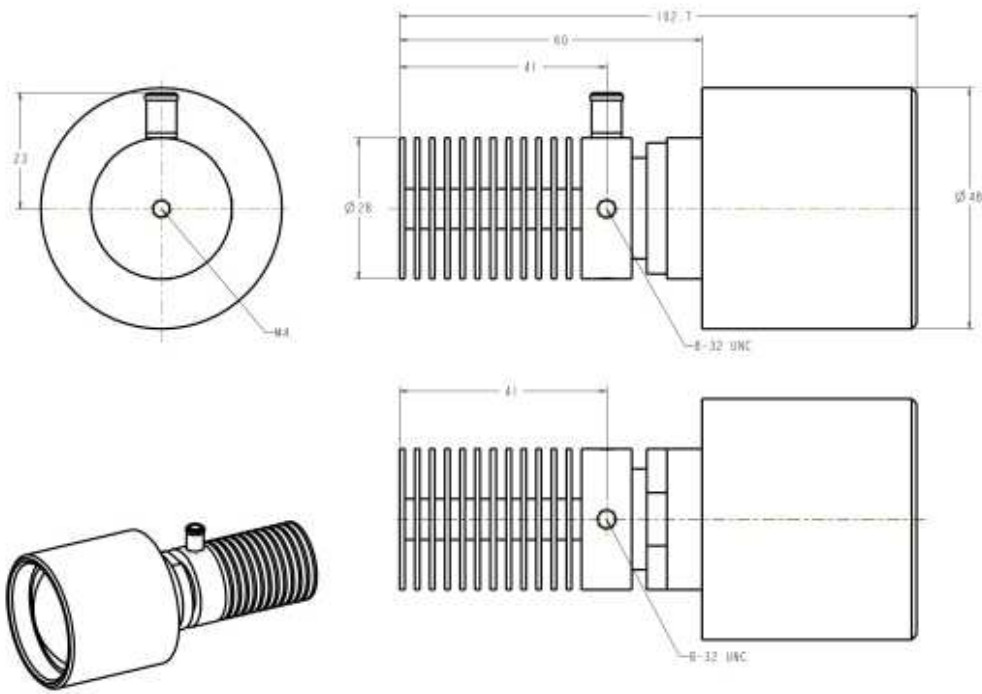
## Installation Drawing for 22-mm LED Collimator, Type-A

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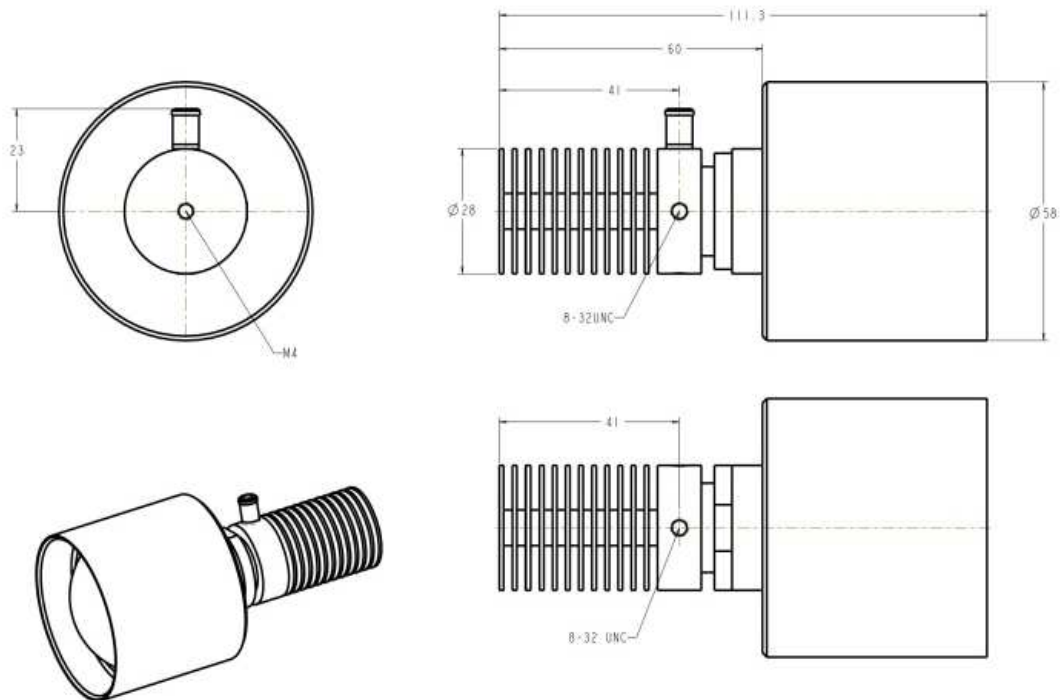
## Installation Drawing for 38-mm LED Collimator, Type-A

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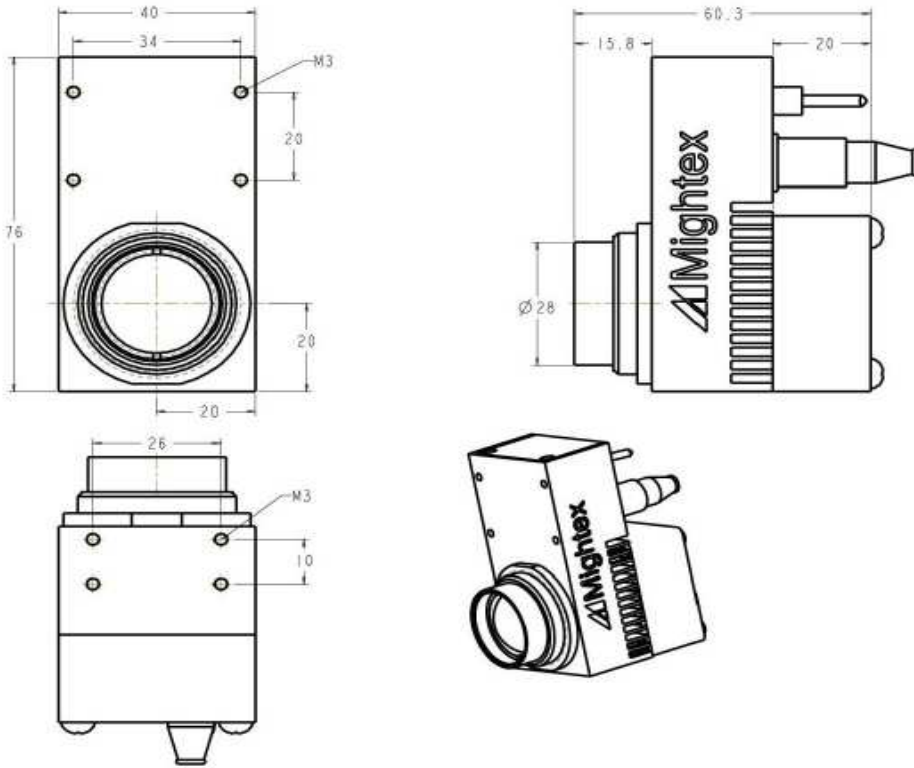
## Installation Drawing for 48-mm LED Collimator, Type-A

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## Installation Drawing for 22-mm LED Collimator, Type-B



## Installation Drawing for 11-mm LED Collimator, Type-H

