

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 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:

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

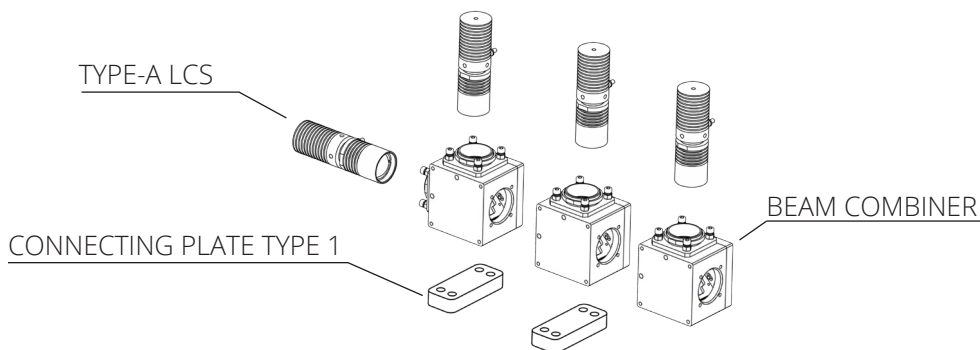
CONFIGURATIONS

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.



EXAMPLE

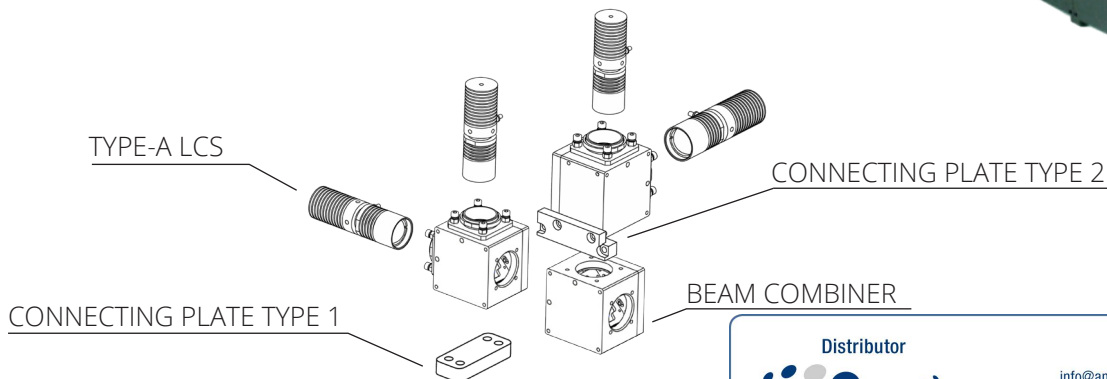


Equal-path Configuration

All LEDs/wavelengths have equal optical path length at the output.



EXAMPLE



Multi-Wavelength Beam Combiner for LED Collimator Sources

(Part Numbers: LCS-BC25-XXXX)

FEATURES

- Combines two LED collimator sources into a single collimated beam
- Cascadable for more than two sources
- Precision locking tilt adjustment on each port
- High-efficiency dichroic beam splitters
- Low-cost neutral beam splitters available
- Integrated filter well for each beam
- Wide range of available wavelengths
- Multiple mounting features for lab and OEM applications
- Microscope adapters available

APPLICATIONS

- Illumination for photonics applications
- Fiber coupling w/ optional focusing module
- Microscope illuminator
- General purpose beam combiner or splitter

PRODUCT DESCRIPTION

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 $\phi 1"$ or $\phi 25\text{mm}$ 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. The beam combiner also 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 diagram and table to select the correct beam combiner for intended LED collimator sources.



Figure-1 Photograph of a beam combiner .

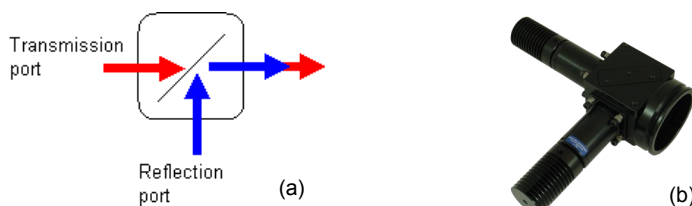


Figure-2: (a) Schematic of beam combiner; and (b) Photograph, assembly of beam combiner and LED collimator sources.

PERFORMANCE SPECIFICATIONS

Clear Aperture: $\phi 25\text{mm}$

Compatible LED collimator sources: LCS-xxxx-xx-22, $\phi 22\text{mm}$ LED collimator sources

Part Number	Reflection Port	%R	Transmission Port	%T
LCS-BC25-0350	255, 260, 275, 280, 285, 295, 310 or 325nm	>95	365, 385, 400, 420, 455, 470, 505, 530, 590, 617, 625, 656, 680, 740, 780nm	>95
LCS-BC25-0365	255, 260, 275, 280, 285, 295, 310, 325 or 340nm	>95	385, 400, 420, 455, 470nm	>95
LCS-BC25-0379	365nm	>95	385, 400, 420nm	>95
LCS-BC25-0380	340 or 365nm	>95	400, 455, 470, 505, 530, 590, 617, 625, 657, 680, 740, 780, 850, 870 or 940nm	>95
LCS-BC25-0400	365 or 385nm	>95	455, 470, 505, 530, 590, 617, 625, 657, 680, 740, 780, 850, 870 or 940nm	>95
LCS-BC25-0409	340, 365, 385 or 400nm	>95	455, 470, 505, 530, 590, 617, 625, 657, 680, 740, 780, 850, 870 or 940nm	>95
LCS-BC25-0410	365 or 380nm	>95	455, 470, 505, 530, 590, 617, 625, 657, 680, 740, 780 or 850nm	>95
LCS-BC25-0425	365, 385 or 400nm	>95	455, 470, 505, 530, 590, 617, 625, 657, 680, 740, 780 or 850nm	>95
LCS-BC25-0460	400nm	>95	470, 505, 530, 590, 617, 625 or 657nm	>95
LCS-BC25-0480	365, 385, 400, 455, or 470nm	>95	505, 530, 590, 617, 625, 657, 680, 740, 780 or 850nm	>95
LCS-BC25-0495	400, 455 or 470nm	>95	530, 590, 617, 625 or 657nm	>95
LCS-BC25-0505	455 or 470nm	>95	530, 590, 617, 625, 657 or 740nm	>95
LCS-BC25-0515	365, 385, 455, 470, or 505nm	>95	530, 590, 617, 625, 657, 680, 740, 780 or 850nm	>95
LCS-BC25-0520	455, 470 or 505nm	>95	590, 617, 625, 657 or 740nm	>95
LCS-BC25-0550	365, 385, 455, 470, 505, or 530nm	>95	590, 617, 625, 657, 680, 740, 780 or 850nm	>95
LCS-BC25-0560	470, 505 or 530nm	>95	590, 617, 625, 657 or 740nm	>95
LCS-BC25-0595	505 or 530nm	>95	617, 625, 657, 740 or 850nm	>95
LCS-BC25-0605	365, 385, 455, 470, 505, 530 or 590nm	>95	617, 625, 657, 680, 740, 780 or 850nm	>95
LCS-BC25-0635	470, 505, 530, 590, 617 or 625nm	>95	657, 740 or 850nm	>95
LCS-BC25-0660	590, 617 or 630nm	>95	740 or 850nm	>95
LCS-BC25-0685	590, 617, 630 or 657nm	>95	740 or 850nm	>95

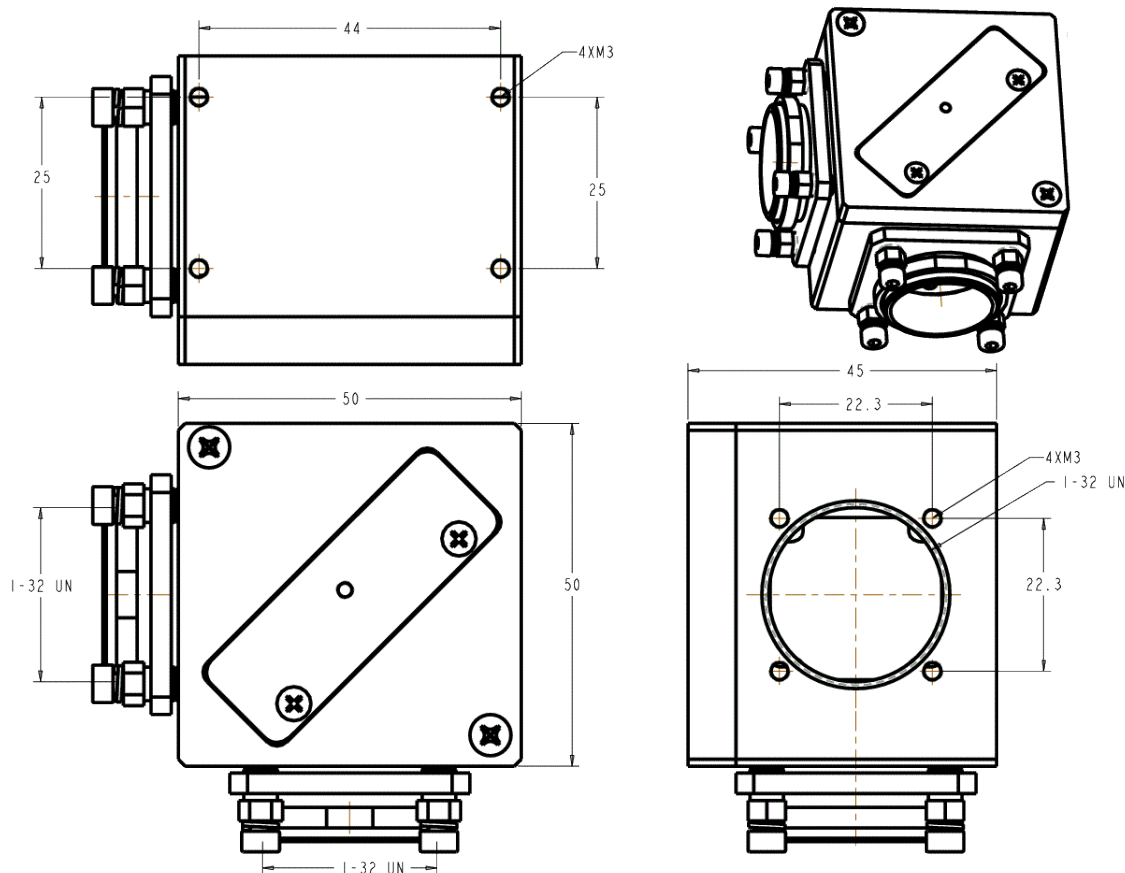
Multi-Wavelength Beam Combiner for LED Collimator Sources

(Part Numbers: LCS-BC25-XXXX)

Part Number	Reflection Port	%R	Transmission Port	%T
LCS-BC25-0700	530, 590, 617, 625, 656 or 680	>95	740, 780	>95
LCS-BC25-0760	455, 470, 505, 530, 590, 617, 625, 656 or 740nm	>95	780, 850, 870, 940	>95
LCS-BC25-0800	455, 470, 505, 530, 590, 617, 625, 657, 680, 740 or 780nm	>95	850, 870 or 940nm	>95
LCS-BC25-0810	740 or 780nm	>95	850 or 940nm	>95
LCS-BC25-0000	400, 455, 470, 505, 530, 590, 617, 630, 657 or white	~45	400, 455, 470, 505, 530, 590, 617, 630, 657 or white	~45
LCS-BC25-0070	400, 455, 470, 505, 530, 590, 617, 625, 657 or white	~30	400, 455, 470, 505, 530, 590, 617, 625, 657 or white	~70

Weight: 190g

INSTALLATION DRAWING



PART NUMBER AND ORDERING INFORMATION

LCS - BC25 -

Edge Wavelength

For example, LCS-BC25-0495 has an edge wavelength of 495nm. According to the table above any one of the 400, 455 or 470nm wavelengths can be connected to the reflection port, and any one of the 530, 590, 617, 625 or 657nm wavelengths may be connected to the transmission port.

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 sales@mightex.com for details.