



PART NUMBER 40A-45A-48A-64A-11
 ITEM NAME MULTI-WAVELENGTH LASER

PRODUCT DATASHEET



DESCRIPTION

Cutting-edge widely configurable 4-Wavelength Laser Combiner—a compact powerhouse designed to revolutionize your research in life sciences and fluorescence applications. This sleek device seamlessly integrates four distinct wavelengths into a single housing, providing unparalleled convenience without compromising performance.

Crafted with precision and innovation, this laser combiner is a game-changer for researchers and scientists seeking efficiency in their experiments. Its compact size belies its capabilities, making it ideal for laboratories where space is at a premium. This particular configuration combines wavelengths, which are standard for use in Life Sciences, Food, Metrology, and Medical applications. An easy-to-use PC interface and separate TTL inputs allow full control over the individual wavelengths.

Features:

- Four wavelengths
- Plug-and-play
- Single user interface for all 4 wavelengths

Advantages:

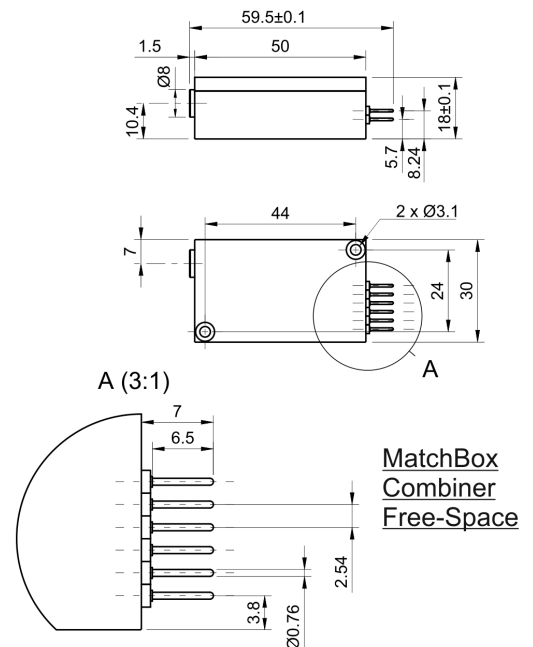
- Space-saving design
- No optics realignment
- Remote PC control

SPECIFICATIONS

Specifications updated: 25 July 2024

Parameter	Minimum Value	Typical Value	Maximum Value
Output power, mW	-	405 nm - 120 450 nm - 70 488 nm - 40 638 nm - 130 ¹	-
Wavelength tolerance, nm	400 442 480 635	405 450 488 638	410 458 495 641
Longitudinal modes	-	Multiple	-
Spectral line width FWHM, nm	-	1	2
Power stability, % (RMS, 8 hrs)	-	0.2 ²	1
Power stability, % (peak-to-peak, 8 hrs)	-	1	3
Intensity noise, % (RMS, 20 Hz to 20 MHz)	-	0.5 ³	1
Transversal modes	-	TEM00	-
Polarization direction	-	Horizontal	-
Polarization contrast	50 50 10 10	405 nm - 300 450 nm - 300 488 nm - 100 638 nm - 50	-
Beam height (1/e ²), mm	-	405 nm - 1.3 450 nm - 1.4 488 nm - 1.3 638 nm - 1.2	1.7 1.6 1.7 1.6

DRAWING



Beam width (1/e ²), mm	-	405 nm - 0.9 450 nm - 0.9 488 nm - 0.8 638 nm - 1	1.4 1.3 1.1 1.3
Beam position overlap, mm	-	- 4	1
Horizontal beam divergence, mrad	-	405 nm - 0.9 450 nm - 1.2 488 nm - 1.1 638 nm - 1.2	1.5 1.9 1.4 1.4
Vertical beam divergence, mrad	-	405 nm - 0.5 450 nm - 0.5 488 nm - 0.4 638 nm - 0.6	1 0.7 1.2 1
M ² effective	-	405 nm - 1.3 450 nm - 1.4 488 nm - 1.3 638 nm - 1.3	1.5 1.6 1.5 1.4
Control interface type	-	UART ⁵	-
Operation mode	-	ACC (CW)	-
Modulation bandwidth, MHz	-	10 ⁶	-
Input voltage, VDC	8	9	12
External power supply requirement	-	+9 V DC, 1.5 A ⁷	+12 V DC, 1.5 A
Dimensions (WxDxH), mm	-	50 x 30 x 18 ⁸	-
Beam height from the base, mm	-	10.4	-
Heat-sinking requirement, °C/W	-	<0.5	-
Optimum heatsink temperature, °C	-	25	-
Warm up time, mins (cold start)	-	< 1	2
Temperature stabilization	-	Internal TEC	-
Overheat protection	-	Yes	-
Storage temperature, °C (non-condensing)	-10	-	50
Net weight, kg	-	0.15	-
Power consumption, W	-	2 ⁹	18
Warranty, months (op. hrs)	-	14 (10000) ¹⁰	-
RoHS	-	Yes	-
CE compliance	-	- General Product Safety Directive (GPSD) 2001/95/EC - (EMC) Directive 2004/108/EC	-
OEM lasers are not compliant with	-	IEC60825- 1:2014 (compliant using additional accessories)	-

¹ The optical power can be tuned from virtually 0% to 100% by changing the driving current of the laser diodes. However, other specifications, such as central wavelength, power stability, noise, polarization ratio, beam shape, quality, and circularity are not guaranteed at power levels other than factory preset power. Significantly worse power stability is to be expected at very low power levels, e.g. <3% from specified nominal power.

² The long term power test is carried out at constant laser body temperature (+/-0.1 °C) using an optical power meter with an input bandwidth of 10 Hz. The actual measurement rate has a period of about 20 seconds to 1 minute.

³Noise level is measured with a fast photodiode connected to an oscilloscope. The overall system bandwidth is from 2 kHz to 20 MHz.

⁴Measured at 1 m from output aperture between the centers of two most distant beams.

⁵The break-out-box AM-C9 can be used for the conversion of UART communication to either USB.

⁶TTL digital modulation up to 10 MHz.

⁷If the break-out-box AM-C9 is used, a PD (Power Delivery) type of power supply can be used.

⁸Excluding control interface pins and an output window/fiber assembly.

⁹For single enabled wavelength.

¹⁰Whichever occurs first.

Note: Product specifications are subject to change without prior notice to improve reliability, function or design or otherwise.