



PART NUMBER 40A-52A-64A-78A-11
 ITEM NAME MULTI-WAVELENGTH LASER

PRODUCT DATASHEET



DESCRIPTION

A widely configurable 4-wavelength dichroic laser featuring precisely co-aligned optical paths in a free-space output configuration. Redefine the boundaries of your research in life sciences and fluorescence applications with our cutting-edge 4-Wavelength Laser Combiner. This compact powerhouse seamlessly integrates four distinct wavelengths into a single housing, ensuring unmatched convenience without any compromise in performance.

Features:

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

Advantages:

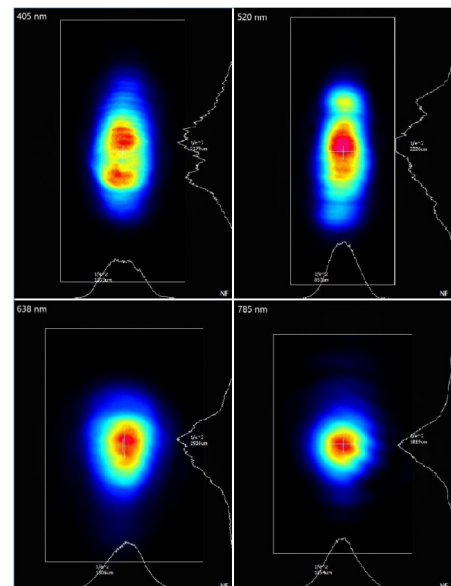
- Space-saving design
- No optics realignment
- Remote PC control

SPECIFICATIONS

Specifications updated: 29 May 2024

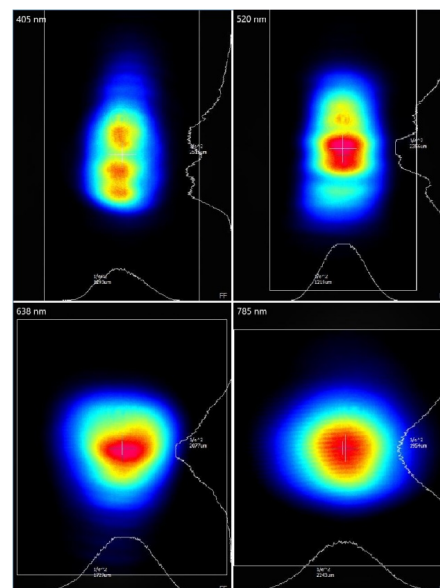
Parameter	Minimum Value	Typical Value	Maximum Value
Output power, mW	-	405 nm - 120 520 nm - 80 638 nm - 130 785 nm - 120 ¹	-
Wavelength tolerance, nm	400 515 635 782	405 520 638 785	410 530 641 788
Longitudinal modes	-	Multiple	-
Spectral line width FWHM, nm	-	1	2
Power stability, % (RMS, 8 hrs)	-	0.2 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 10 10 10	405 nm - 300 520 nm - 50 638 nm - 50 785 nm - 50	-
Beam width (1/e ²), mm	-	405 nm - 0.9 520 nm - 0.8 638 nm - 1 785 nm - 1	1.4 1.2 1.3 1.7

TYPICAL NEAR FIELD



Beam height (1/e ²), mm	-	405 nm - 1.3 520 nm - 1.4 638 nm - 1.2 785 nm - 1.2	1.7 1.7 1.6 1.9
Beam position overlap, mm	-	- 4	1
Horizontal beam divergence, mrad	-	405 nm - 0.9 520 nm - 1.3 638 nm - 1.2 785 nm - 1.5	1.5 1.6 1.4 1.8
Vertical beam divergence, mrad	-	405 nm - 0.5 520 nm - 0.4 638 nm - 0.6 785 nm - 0.8	1 0.8 1 1.6
M ² effective	-	405 nm - 1.3 520 nm - 1.35 638 nm - 1.3 785 nm - 1.2	1.5 1.6 1.4 1.5
Control interface type	-	UART ⁵	-
Operation mode	-	ACC (CW)	-
Input voltage, VDC	8	9	12
External power supply requirement	-	+9 V DC, 1.5 A ⁶	+12 V DC, 1.5 A
Dimensions (WxDxH), mm	-	50 x 30 x 18 ⁷	-
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)	-	-	-
Net weight, kg	-	0.3	-
Power consumption, W	-	2 ⁸	18
Warranty, months (op. hrs)	-	14 (10000) ⁹	-
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)	-
Modulation bandwidth, MHz	-	10 ¹⁰	-

TYPICAL FAR FIELD



DRAWING

Drawing of Multi-Wavelength Laser

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.

⁵Break-out-boxes AM-C8 and AM-C3 can be used for conversion of UART communication to either USB or RS232.

⁶If the break-out-box AM-C9 is used, a PD (Power Delivery) type of power supply can be used.

⁷Excluding control interface pins and an output window/fiber assembly.

⁸For single enabled wavelength.

⁹Whichever occurs first.

¹⁰TTL digital modulation up to 10 MHz.

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