



PART NUMBER 52A-63A-78A-83A-11
 ITEM NAME MULTI-WAVELENGTH LASER

PRODUCT DATASHEET



DESCRIPTION

A widely configurable 4-wavelength dichroic combiner featuring precisely co-aligned optical paths in a free-space output configuration. All optics and electronics fitted into the ultra compact 'Matchbox' housing. This particular configuration provides up to four wavelengths, which are standard for use in Life Sciences, Food, Metrology and Medical applications. An easy to use PC interface and separate TTL inputs allows full control over the individual wavelengths.

Features:

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

Advantages:

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

Applications:

- Wide field and Fluorescence Microscopy
- Flow cytometry
- Food sorting and quality
- Particle characterization

SPECIFICATIONS

Specifications updated: 29 May 2024

Parameter	Minimum Value	Typical Value	Maximum Value
Output power, mW	-	520 nm- 80 633 nm- 80 785 nm- 100 830 nm- 160 ¹	-
Wavelength tolerance, nm	515 630 782 820	520 633 785 830	530 637 788 840
Power stability, % (RMS, 8 hrs)	-	0.2 ²	1
Power stability, % (peak-to-peak, 8 hrs)	-	1	3
Longitudinal modes	-	Multiple	-
Spectral line width FWHM, nm	-	<1.5	2
Intensity noise, % (RMS, 20 Hz to 20 MHz)	-	<1 ³	-
Transversal modes	-	TEM00	-
Beam width (1/e ²), mm	-	520 nm - 0.9 633 nm - 1 785 nm - 1 830 nm - 1.2	1.2 1.3 1.7 2
Beam height (1/e ²), mm	-	520 nm - 1.4 633 nm - 1.2 785 nm - 1.2 830 nm - 1.5	1.7 1.8 1.9 1.8
Beam position overlap, mm	-	- 4	1

DRAWING

Drawing of Multi-Wavelength Laser

Horizontal beam divergence, mrad	-	520 nm - 1.3	1.6
		633 nm - 1.2	1.5
		785 nm - 1.5	1.8
		830 nm - 1.6	1.8
Vertical beam divergence, mrad	-	520 nm - 0.4	0.8
		633 nm - 0.4	0.8
		785 nm - 0.8	1.6
		830 nm - 0.9	1.8
M ² effective	-	520 nm - 1.35	1.6
		633 nm - 1.2	1.6
		785 nm - 1.2	1.5
		830 nm - 1.4	1.6
Control interface type	-	UART ⁵	-
Operation mode	-	ACC (CW)	-
Input voltage, VDC	8	9	12
External power supply requirement	-	9 (@1.5 Amp) ⁶	12 (@1.5 Amp)
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 min	2
Temperature stabilization	-	Internal TEC	-
Overheat protection	-	Yes	-
Storage temperature, °C (non-condensing)	-	-	-
Net weight, kg	-	0.3	-
Power consumption, W	-	2	-
Warranty, months (op. hrs)	-	14 (10000) ⁸	-
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 ⁹	-

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.

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

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

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

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

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

⁸ Whichever occurs first.

⁹ TTL digital modulation up to 10 MHz.

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