



PART NUMBER 40A-48A-52A-64A-15  
 ITEM NAME DIODE LASER COMBINER; PM FIBER (405 NM, 488 NM, 520 NM, 638 NM)

## PRODUCT DATASHEET



### DESCRIPTION

It is a wavelength combiner featuring 4 laser diodes integrated within ultra-compact 'Matchbox' housing. The classical dichroic mirror combining technique is used in combination with our proprietary micro-optics assembly to make this system both economical and compact. All optics and electronics are fitted into the ultra-compact 'Matchbox' housing. An easy to use PC interface and separate TTL inputs allow full control over the individual wavelengths.

This wavelength combiner provides up to four wavelengths, which are standard for use in Life Sciences, Food sorting, Metrology, and Medical applications. The unit combines wavelengths into a PM output fiber. An easy to use PC interface allows full control over the individual wavelengths.

#### Features:

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

#### Advantages:

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

#### Applications:

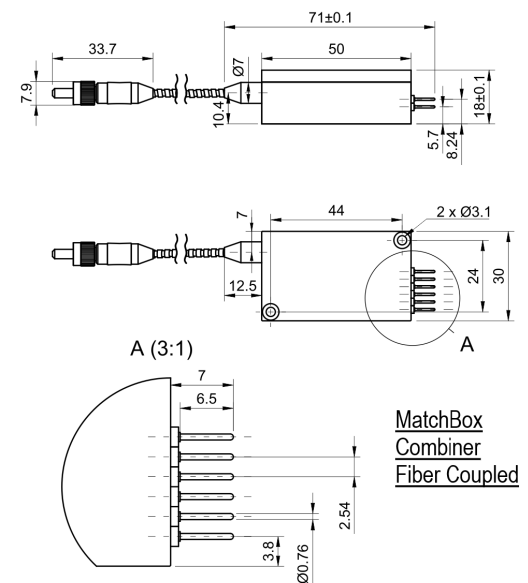
- Confocal Fluorescence Microscopy
- Flow cytometry
- Food sorting and quality
- Particle characterization

## SPECIFICATIONS

Specifications updated: 1 October 2020

Parameter	Minimum Value	Typical Value	Maximum Value
Output power, mW	-	405 nm - 50 488 nm - 20 520 nm - 40 638 nm - 50 <sup>1</sup>	-
Wavelength Tolerance, nm	-	+/-5	-
Longitudinal Modes	-	Multiple	-
Spectral line width FWHM, nm	-	0.7	1.2
Fiber Core Diameter, $\mu\text{m}$	-	3.5	-
Polarization direction	-	Aligned within the slow axis of the PM fiber and the key position.	-
Polarization extinction ratio (from PM fiber), dB	10	15	25
Power stability, % (RMS, 8 hrs)	-	0.2 <sup>2</sup>	1
Power stability, % (peak-to-peak, 8 hrs)	-	2 <sup>3</sup>	5
Noise, % (RMS, 20 Hz to 20 MHz)	-	0.1 <sup>4</sup>	1
Transversal Mode	-	Single	-
Control Interface	-	UART <sup>5</sup>	-

## DRAWING



Operation Mode	-	ACC (CW)	-
Modulation bandwidth, MHz	-	10 <sup>6</sup>	-
Input voltage, VDC	8	9	12
External Power Supply Requirement, V	-	+9 V DC, 1.5 A 7	+12 V DC, 1.5 A
Dimensions, mm	-	50 x 30 x 18 <sup>8</sup>	-
Heat-sinking requirement, °C/W	-	<0.5	-
Optimum heatsink temperature, °C	15	20	30
Warm-up Time, min (Cold Start)	0.5	1	5
Temperature Stabilization	-	Internal TEC	-
Overheat Protection	-	Yes	-
Storage temperature, °C (non-condensing)	-10	-	50
Net weight, kg	-	0.2	-
Power consumption, W	-	2 <sup>9</sup>	18
Warranty, months (op. hrs)	-	14 (10000) <sup>10</sup>	-
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)	-

<sup>1</sup> 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.

<sup>2</sup> 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.

<sup>3</sup> 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.

<sup>4</sup> Noise level is measured with a fast photodiode connected to an oscilloscope. The overall system bandwidth is from 2 kHz to 20 MHz.

<sup>5</sup> The break-out-box AM-C9 can be used for conversion of UART communication to USB.

<sup>6</sup> TTL digital modulation up to 10 MHz.

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

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

<sup>9</sup> For single enabled wavelength.

<sup>10</sup> Whichever occurs first.

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