

CW Lasers

>20 Wavelengths
MM/SM/PM fiber
Single-frequency options

Combiners

405 nm to 850 nm
4 wavelengths
Open beam or Fiber

Q-switch Lasers

1029 / 514.5 / 343 nm
High pulse energy
SLM option

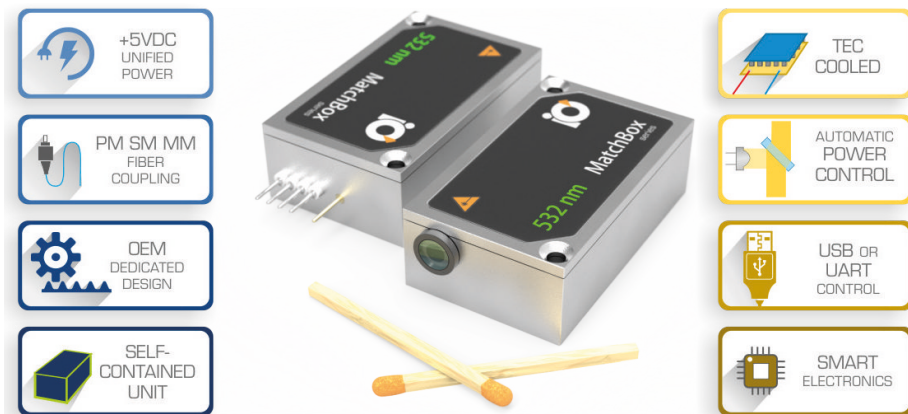
MatchBox

series

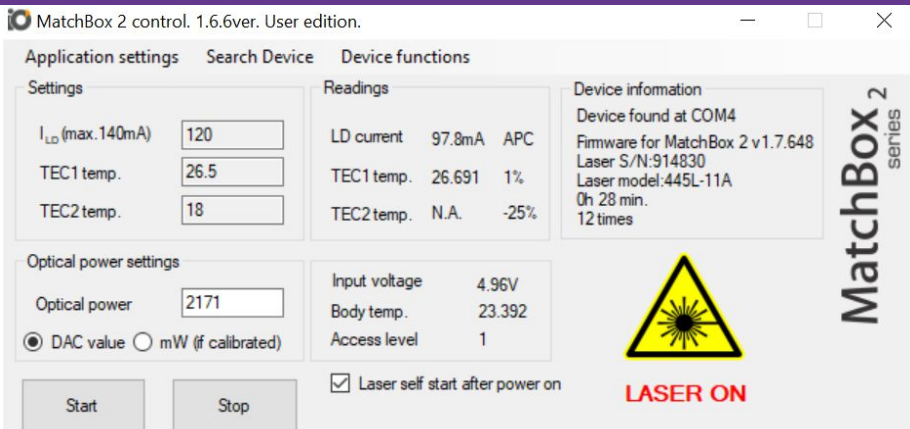


LASERS FOR SPECTROSCOPY
AND LIDAR

FEATURES



CONTROL SOFTWARE



APPLICATIONS

CW Lasers (regular spectrum)

- Fluorescence spectroscopy
- Scanning Microscopy
- Particle analysis
- Sorting
- Flow cytometry
- Optical guiding
- Excitation

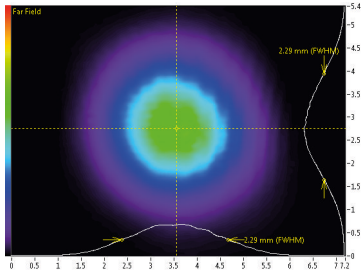
CW Lasers (narrow spectrum)

- Raman Spectroscopy
- Holography
- Inspection
- Metrology
- Interferometry
- Laser Seeding

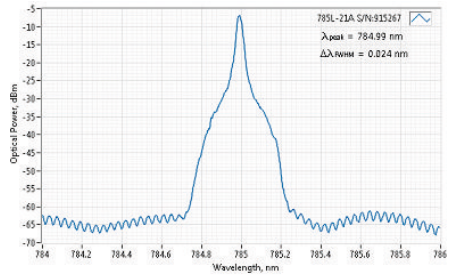
Pulsed Lasers

- Range Finding
- Laser Induced Breakdown Spectroscopy (LIBS)
- Laser Seeding
- Raman Spectroscopy
- Holography
- Supercontinuum Generation

GENERAL INFORMATION

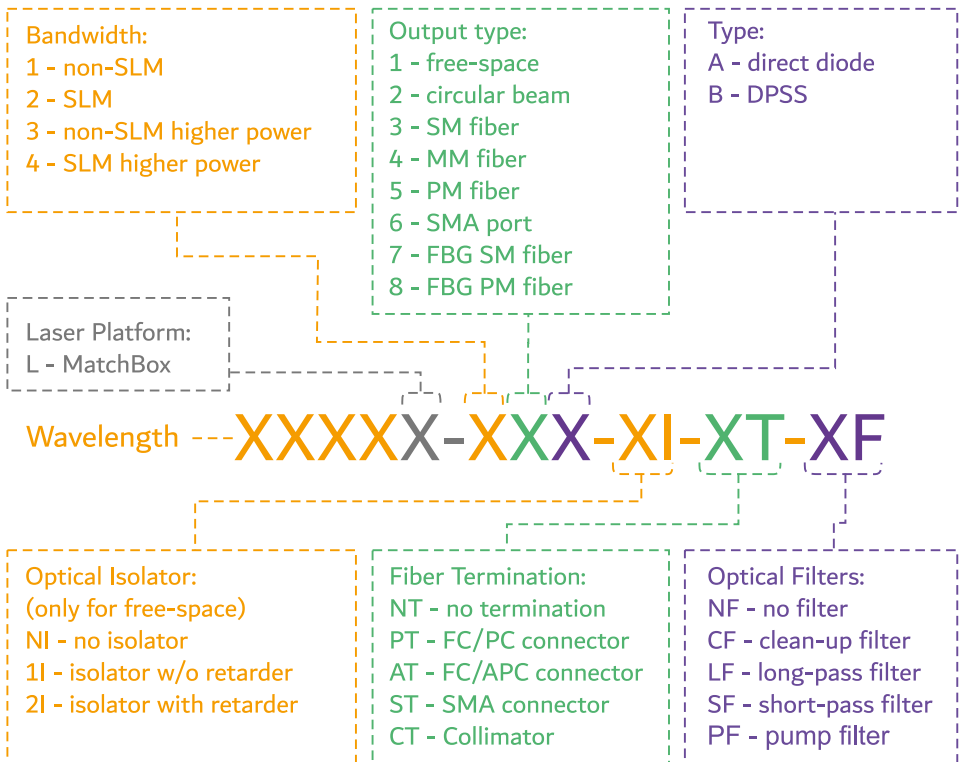


Beam profile of 1064L-11B (far field)



Spectrum of 785L-21A SLM laser (measurement is limited by spectrum analyzer)

PART NUMBERS OF CW LASERS



SPECIFICATIONS OF NARROW SPECTRUM CW LASERS

	Output power, mW	Power stability, % (RMS, 8 hrs)*	Noise, % (RMS, 20 Hz to 20 MHz)*	Spectral line width FWHM, pm*	Polarization contrast*	Transversal modes	M ² effective*
0405L-21A	40	0.2	0.25	0.1	2000	TEM00	1.3
0405L-23A	15	1	0.25	0.1	N/A	TEM00	1.05
0405L-24A	30	1	0.25	0.1	N/A	TEM00	N/A
0405L-25A	15	1	0.25	0.1	200	TEM00	1.05
0488L-21A	30	0.2	0.25	0.1	2000	TEM00	1.3
0488L-23A	10	1	0.25	0.1	N/A	TEM00	1.05
0488L-24A	15	1	0.25	0.1	N/A	TEM00	N/A
0488L-25A	10	1	0.25	0.1	200	TEM00	1.05
0515L-21A	40	0.2	0.8	0.1	2000	TEM00	1.3
0515L-23A	10	1	0.8	0.1	N/A	TEM00	1.05
0515L-24A	30	1	0.8	0.1	N/A	TEM00	N/A
0515L-25A	10	1	0.8	0.1	200	TEM00	1.05
0532L-21B	50	0.4	0.5	0.2	1000	TEM00	1.1
0532L-23B	25	1	0.5	0.2	N/A	TEM00	1.05
0532L-24B	40	1	0.5	0.2	N/A	TEM00	N/A
0532L-25B	25	1	0.5	0.2	200	TEM00	1.05
0532L-41B	100	0.4	0.5	0.2	1000	TEM00	N/A
0532L-43B	50	1	0.5	0.2	N/A	TEM00	1.05
0532L-44B	80	1	0.5	0.2	N/A	TEM00	1.2
0532L-45B	50	1	0.5	0.2	200	TEM00	1.05
0532L-61B	200	0.4	0.5	0.2	1000	TEM00	1.3
0532L-63B	100	1	0.5	0.2	N/A	TEM00	1.05
0532L-64B	160	1	0.5	0.2	N/A	TEM00	N/A
0532L-65B	100	1	0.5	0.2	200	TEM00	1.05
0633L-21A	70	0.2	0.25	0.1	2000	TEM00	1.3
0633L-23A	35	1	0.25	0.1	N/A	TEM00	1.05
0633L-24A	40	1	0.25	0.1	N/A	TEM00	N/A
0633L-25A	35	1	0.25	0.1	200	TEM00	1.05
0638L-21A	100	0.2	0.25	0.1	2000	TEM00	1.3
0638L-23A	60	1	0.25	0.1	N/A	TEM00	1.05
0638L-24A	80	1	0.25	0.1	N/A	TEM00	N/A
0638L-25A	60	1	0.25	0.1	200	TEM00	1.05
0783L-21A	130	0.2	0.25	0.1	2000	TEM00	1.3
0783L-23A	70	1	0.25	0.1	N/A	TEM00	1.05
0783L-24A	90	1	0.25	0.1	N/A	TEM00	N/A
0783L-25A	70	1	0.25	0.1	200	TEM00	1.05
0785L-21A	130	0.2	0.25	0.1	2000	TEM00	1.3
0785L-23A	80	1	0.25	0.1	N/A	TEM00	1.05
0785L-24A	100	1	0.25	0.1	N/A	TEM00	N/A
0785L-25A	80	1	0.25	0.1	200	TEM00	1.05
0785L-27A	80	1	0.25	0.1	N/A	TEM00	1.05
0785L-28A	80	1	0.25	0.1	200	TEM00	1.05
0785L-41A	500	0.2	0.25	30	1500	TEM40	N/A
0785L-44A	450	1	0.25	30	N/A	N/A	N/A
0785L-46A	450	1	0.25	30	N/A	N/A	N/A
0830L-21A	80	0.2	0.25	0.1	2000	TEM00	1.05
0830L-23A	50	1	0.25	0.1	N/A	TEM00	1.05
0830L-24A	70	1	0.25	0.1	N/A	TEM00	N/A
0830L-25A	50	1	0.25	0.1	200	TEM00	1.05
1030L-21B	400	0.4	0.5	0.2	N/A	TEM00	1.1
1030L-23B	200	1	0.5	0.2	N/A	TEM00	1.05
1030L-24B	280	1	0.5	0.2	N/A	TEM00	N/A
1030L-25B	200	1	0.5	0.2	200	TEM00	1.05
1064L-21B	400	0.4	0.5	0.2	1000	TEM00	1.1
1064L-23B	200	1	0.5	0.2	N/A	TEM00	1.05
1064L-24B	280	1	0.5	0.2	N/A	TEM00	N/A
1064L-25B	200	1	0.5	0.2	200	TEM00	1.05

* Typical performance (full specification available at <https://integratedoptics.com/products/cw-lasers>)

SPECIFICATIONS OF BROAD SPECTRUM CW LASERS

	Output power, mW	Power stability, % (RMS, 8 hrs)*	Noise, % (RMS, 20 Hz to 20 MHz)*	Spectral line width FWHM, nm*	Polarization contrast*	Transversal modes	M2 effective*
O405L-11A	150	0.2	0.25	0.5	2000	TEM00	1.2
O405L-12A	70	1	0.25	0.5	N/A	TEM00	1.05
O405L-13A	80	1	0.25	0.5	N/A	TEM00	1.05
O405L-14A	130	1	0.25	0.5	N/A	Multiple	N/A
O405L-15A	80	1	0.25	0.5	100	TEM00	1.05
O405L-16A	130	1	0.25	0.5	N/A	TEM00	N/A
O445L-11A	80	0.2	0.25	0.8	2000	TEM00	1.2
O445L-12A	30	1	0.25	0.8	N/A	TEM00	1.05
O445L-13A	35	1	0.25	0.8	N/A	TEM00	1.05
O445L-14A	50	1	0.25	0.8	N/A	Multiple	N/A
O445L-15A	35	1	0.25	0.8	200	TEM00	1.05
O445L-16A	50	1	0.25	0.8	N/A	TEM00	N/A
O450L-11A	60	0.2	0.25	0.8	2000	TEM00	1.3
O450L-13A	35	1	0.25	0.8	N/A	TEM00	1.05
O450L-31A	1000	0.2	0.8	1	100	Multiple	N/A
O450L-34A	600	1	0.4	1	N/A	Multiple	N/A
O488L-11A	40	0.2	0.25	1	2000	TEM00	1.2
O488L-12A	15	1	0.8	1	N/A	TEM00	1.05
O488L-13A	20	1	0.25	1	N/A	TEM00	1.05
O488L-14A	30	1	0.25	1	N/A	Multiple	N/A
O488L-15A	20	1	0.25	1	200	TEM00	1.05
O488L-16A	30	1	0.25	1	N/A	TEM00	N/A
O515L-11A	60	0.2	0.8	1	2000	TEM00	1.2
O515L-12A	25	1	0.8	1	N/A	TEM00	1.05
O515L-13A	30	1	0.8	1	N/A	TEM00	1.05
O515L-14A	40	1	0.8	1	N/A	Multiple	N/A
O515L-15A	30	1	0.8	1	200	TEM00	1.05
O515L-16A	40	1	0.8	1	N/A	TEM00	N/A
O520L-11A	60	0.2	0.8	1	2000	TEM00	1.2
O520L-13A	30	1	0.8	1	N/A	TEM00	1.05
O520L-14A	40	1	0.8	1	N/A	Multiple	N/A
O520L-15A	30	1	0.8	1	200	TEM00	1.05
O520L-16A	40	1	0.8	1	N/A	TEM00	N/A
O532L-11B	200	0.4	3	0.3	1000	TEM00	1.3
O532L-13B	100	1	3	0.3	N/A	TEM00	1.05
O532L-14B	160	1	3	0.3	N/A	Multiple	N/A
O532L-15B	100	1	3	0.3	200	TEM00	1.05
O532L-16B	200	1	3	0.3	N/A	TEM00	N/A
O532L-31B	500	0.2	3	0.3	2000	Near TEM00	2.4
O532L-34B	350	1	3	0.3	N/A	Multiple	N/A
O638L-11A	180	0.2	0.25	0.7	2000	TEM00	1.2
O638L-12A	65	1	0.25	0.7	N/A	TEM00	1.05
O638L-13A	100	1	0.25	0.7	N/A	TEM00	1.05
O638L-14A	120	1	0.25	0.7	N/A	Multiple	N/A
O638L-15A	100	1	0.25	0.7	200	TEM00	1.05
O638L-16A	120	1	0.25	0.7	N/A	TEM00	N/A
O638L-34A	1500	1	0.4	1	N/A	Multiple	N/A
O660L-11A	110	0.2	0.25	0.7	2000	TEM00	1.2
O660L-12A	40	1	0.25	0.7	N/A	TEM00	1.05

* Typical performance (full specification available at <https://integratedoptics.com/products/cw-lasers>)

- Custom: other wavelengths and configurations are available on request.
- Other wavelength ranges: 457 nm, 561 nm, 593 nm, 1550 nm

	Output power, mW	Power stability, % (RMS, 8 hrs)*	Noise, % (RMS, 20 Hz to 20 MHz)*	Spectral line width FWHM, nm*	Polarization contrast*	Transversal modes	M2 effective*
0660L-13A	45	1	0.25	0.7	N/A	TEM00	1.05
0660L-14A	90	1	0.25	0.7	N/A	Multiple	N/A
0660L-15A	45	1	0.25	0.7	200	TEM00	1.05
0660L-16A	90	1	0.25	0.7	N/A	TEM00	N/A
0785L-11A	180	0.2	0.25	0.2	2000	TEM00	1.2
0785L-12A	90	1	0.25	0.2	N/A	TEM00	1.05
0785L-13A	100	1	0.25	0.2	N/A	TEM00	1.05
0785L-14A	150	1	0.25	0.2	N/A	Multiple	N/A
0785L-15A	130	1	0.25	0.2	200	TEM00	1.05
0785L-16A	150	1	0.25	0.2	N/A	TEM00	N/A
0808L-34A	2000	1	0.25	1	N/A	Multiple	N/A
0830L-11A	130	0.2	0.25	0.5	2000	TEM00	1.2
0830L-12A	45	1	0.25	0.5	N/A	TEM00	1.05
0830L-13A	50	1	0.25	0.5	N/A	TEM00	1.05
0830L-14A	90	1	0.25	0.5	N/A	Multiple	N/A
0830L-15A	50	1	0.25	0.5	200	TEM00	1.05
0830L-16A	90	1	0.25	0.5	N/A	TEM00	N/A
0850L-11A	130	0.2	0.25	0.5	2000	TEM00	1.2
0850L-13A	60	1	0.25	0.5	N/A	TEM00	1.05
0850L-14A	110	1	0.25	0.5	N/A	Multiple	N/A
0850L-15A	60	1	0.25	0.5	200	TEM00	1.05
0850L-16A	110	1	0.25	0.5	N/A	TEM00	N/A
0915L-11A	200	0.2	0.25	0.5	2000	TEM00	1.2
0915L-13A	80	1	0.25	0.5	N/A	TEM00	1.05
0915L-14A	140	1	0.25	0.5	N/A	Multiple	N/A
0915L-15A	100	1	0.25	0.5	200	TEM00	1.05
0915L-16A	140	1	0.25	0.5	N/A	TEM00	N/A
0975L-11A	200	0.2	0.25	0.5	2000	TEM00	1.2
0975L-13A	80	1	0.25	0.5	N/A	TEM00	1.05
0975L-14A	120	1	0.25	0.5	N/A	Multiple	N/A
0975L-15A	80	1	0.25	0.5	200	TEM00	1.05
0975L-16A	120	1	0.25	0.5	N/A	TEM00	N/A
1030L-11B	<500	0.4	3	0.7	N/A	TEM00	1.1
1030L-13B	300	1	3	0.7	N/A	TEM00	1.05
1030L-14B	400	1	3	0.7	N/A	Multiple	N/A
1030L-15B	300	1	3	0.7	200	TEM00	1.05
1030L-16B	400	1	3	0.7	N/A	TEM00	N/A
1064L-11B	500	0.4	3	0.7	2000	TEM00	1.1
1064L-13B	300	1	3	0.7	N/A	TEM00	1.05
1064L-14B	400	1	3	0.7	N/A	Multiple	N/A
1064L-15B	300	1	3	0.7	200	TEM00	1.05
1064L-16B	400	1	3	0.7	N/A	TEM00	N/A
1123L-11B	200	0.4	3	0.7	1000	TEM00	1.1
1123L-13B	100	1	3	0.7	N/A	TEM00	1.05
1123L-14B	160	1	3	0.7	N/A	Multiple	N/A
1123L-15B	100	1	3	0.7	200	TEM00	1.05
1319L-11B	200	0.4	3	0.7	1000	TEM00	1.1
1319L-13B	100	1	3	0.7	N/A	TEM00	1.05
1319L-14B	160	1	3	0.7	N/A	Multiple	N/A
1319L-15B	100	1	3	0.7	200	TEM00	1.05
1342L-11B	200	0.4	3	0.7	1000	TEM00	1.1

* Typical performance (full specification available at <https://integratedoptics.com/products/cw-lasers>)

OTHER PARAMETERS OF CW LASERS

BEAM PROPERTIES:

- Beam diameter at aperture ($1/e^2$): <2 mm for diode and ~1 mm for DPSS
- Beam divergence (full angle): <2 mrad for diode and <1.5 mrad for DPSS, except 500 mW versions of 532 nm and 785 nm
- Beam pointing stability: <10 μ rad/C°
- Bore sight error: +/-2 mrad (vertical), +/-3 mrad (horizontal)

MODULATION:

- Fast TTL modulation of non-SLM diode lasers is implemented on request
- For SLM diode and all DPSS lasers, the TTL pin is configured for fan speed control
- Modulation of DPSS lasers (up to few kHz) is implemented upon request

FIBER SPECS:

- SLM fiber coupled lasers are made with FC/APC connectors
- Non-SLM lasers are made with FC/PC connectors
- Standard length of a fiber is 1 m to 1.2 m
- Polarization extinction ratio (PM fiber): better than 20 dB
- Polarization rotation (PM fiber): less than 5 degree

PHYSICAL PROPERTIES:

- Control interface type: UART serial bus, convertible to USB with standard accessories
- External power supply requirement: +5VDC, 5A for DPSS, 1.5 A for diode up to 200 mW
- Dimensions (L-W-H): 50 x 30 x 16 mm (excluding pins and output window)
- Beam height from the base: 10.4 mm (+/- 0.3 mm)
- Heatsink requirement: diode <1 °C/W, DPSS <0.5 °C/W
- Optimum heatsink temperature (non-condensing): +15...+30 °C
- Max. heatsink temperature 40 °C
- Internal temperature stabilization: TEC
- Overheat protection: Yes
- Storage temperature (non-condensing): -10 to +50 °C
- Warranty: 14 months, or 10000 hours, whichever occurs first. Operational time calculation is based on an internal EPROM counter

COMPATIBILITY:

- RoHS
- General Product Safety Directive (GPSD) 2001/95/EC
- Electromagnetic Compatibility (EMC) Directive 2004/108/EC
- IEC60825-1:2014 (compliant only using additional accessories)



Unified Physical Control Interface

Vcc and GND pins are for +5 VDC power supply;
 Tx and Rx pins are for UART communication;
 TTL pin is used for digital modulation;
 For DPSS and VBG diode lasers, the TTL pin is configured for FAN control of a compatible heatsink.

WAVELENGTH COMBINERS



A powerful and highly integrated solution for particle analysis, flow cytometry and microscopy applications.

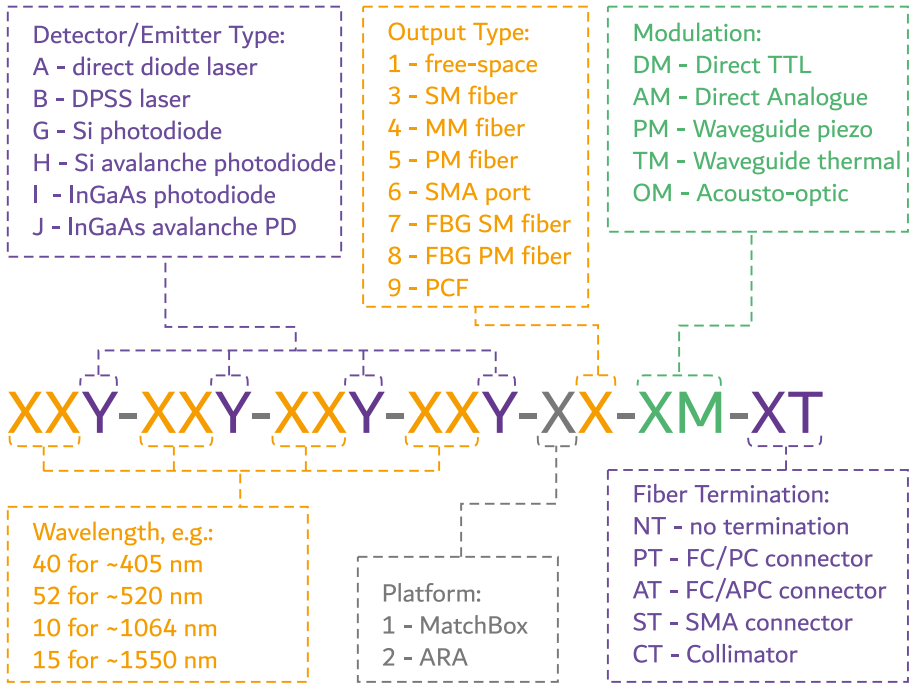
The housing includes 4 emitters/detectors, a dichroic combiner, 4-channel smart digital electronics with individual control and modulation, as well as TEC cooling. High-end stability and flexibility in a size of a MatchBox.

ADVANTAGES

- 4 slots for detectors/emitters
- Free-space or multi-mode fiber output
- Color mixing
- Fast warm-up time (bi-directional TEC)
- Compatible with MatchBox accessories



PART NUMBERS OF COMBINERS



SPECIFICATIONS

Part No.	Wave-length Set	Output Power (free-space '-11')	Output Power (MM fiber '-14')	Wave-length tolerance	8 hrs power stability (% RMS, 8 hrs)	Spectral line-width, nm
40A-45A-	405 nm ●	≤ 130 mW	≤ 100 mW	+/-3 nm	<1	<1.5
52A-64A...	450 nm ●	≤ 70 mW	≤ 30 mW	+/-4 nm		
	520 nm ●	≤ 40 mW	≤ 30 mW	+/-4 nm		
	638 nm ●	≤ 130 mW	≤ 100 mW	+/-3 nm		
40A-49A-	405 nm ●	≤ 130 mW	≤ 100 mW	+/-3 nm	<1	<1.5
52A-64A...	488 nm ●	≤ 40 mW	≤ 25 mW	+/-4 nm		
	520 nm ●	≤ 40 mW	≤ 30 mW	+/-4 nm		
	638 nm ●	≤ 130 mW	≤ 100 mW	+/-3 nm		
Other wavelengths on request: 660 nm, 785 nm, 830 nm, 850 nm						

Based on the item code structure there are **thousands of different configurations**, which are theoretically possible. You are welcome to contact our sales staff in order to get a preliminary evaluation if your target configuration is potentially feasible in the MatchBox combiner platform.

NANOSECOND PULSED LASERS

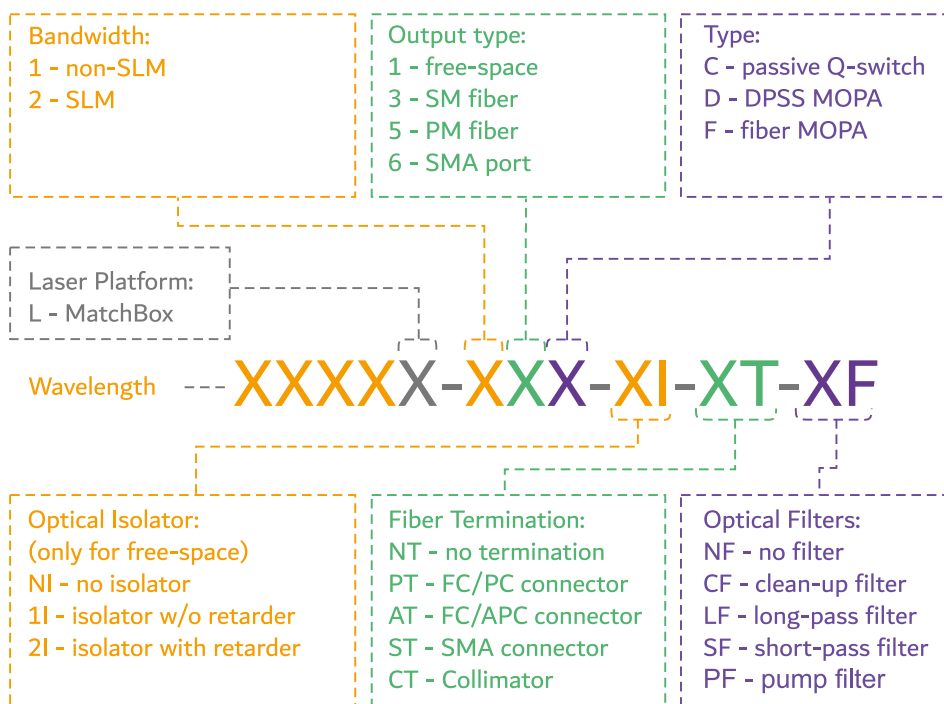


The MatchBox Series includes several variants of pulsed lasers. Matchbox lasers show that small dimensions and high performance are not mutually exclusive.

ADVANTAGES

- Same size and a interface as of CW MatchBox lasers
- High pulse energy
- High average power
- Superb pulse-to-pulse stability in SLM operation

PART NUMBERS OF PULSED LASERS



SPECIFICATIONS

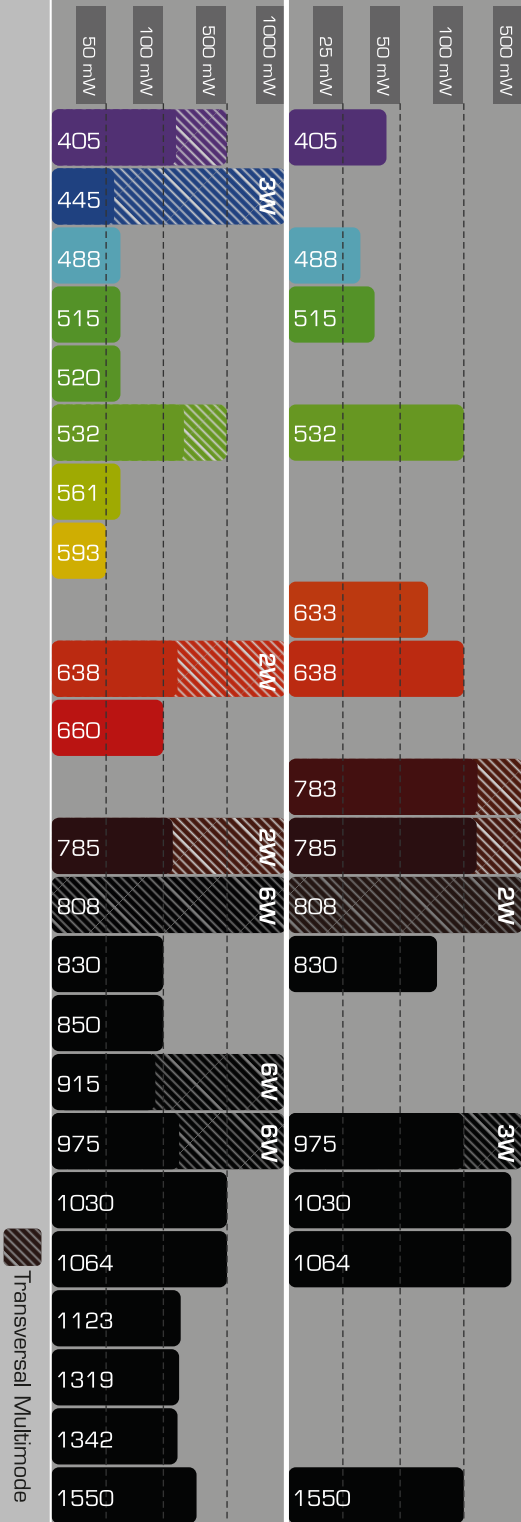
Part Number	Wavelength, nm	Spectral line-width FWHM, pm*	Output power, mW	Pulse duration, ns	Pulse Energy, μ J	Repetition rate, kHz	Power stability, % (RMS, 8 hrs)*	Pulse-to-pulse stability, %*
1030L-11C	1029.5	500	<500	1.5-3	10-100	1-40	0.3	20
1030L-21C	1029.2	2	<500	2-3.6	10-50	1-40	0.3	4
0515L-21C	514.6	1	<200	2-3.6	5-20	1-10	0.3	5
0343L-21C	343.1	0.5	<25	2-3.6	1-3	1-10	0.3	5

* Typical performance (full specification available at <https://integratedoptics.com/products/nanosecond-lasers>)

- Pulse energy and repetition rate can be adjusted according to customers requirements.
- Repetition rate changes upon changing the average output power, the pulse energy remains constant.
- Triggering on request

Regular Spectrum

Narrow Spectrum



Contact for quote:

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sales@integratedoptics.com

Headquarters:

Integrated Optics, UAB

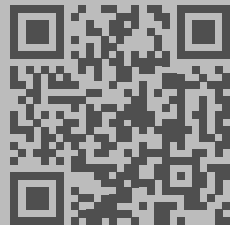
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