



High Average Power Pulsed Nd:YAG Laser Welders

**ML-2551A / ML-2550A /
ML-2651B / ML-2650B**

The ML-2551A / ML-2550A / ML-2651B / ML-2650B Series lasers are specifically designed for high speed spot and seam welding applications. The lasers feature high peak and average power and pulse stability to meet virtually any production welding application.

Each laser can be configured with up to four time or energy share outputs so you may utilize one laser to support up to four workstations processing different parts with different weld schedules.

KEY FEATURES

- Excellent pulse-to-pulse power stability for consistent results along the seam weld
- 500 Hz repetition rate for increased speed of seam welding
- Power ramping and pulse shaping to tailor the pulse to the application and achieve desired penetration
- 300-600 W average power
- Standard two-year warranty
- Field serviceable for minimal downtime and lower spare part pricing

TYPICAL APPLICATIONS



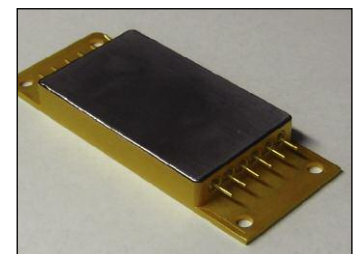
Air bag detonator



Automotive sub-assembly

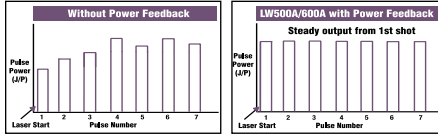


End effector cap

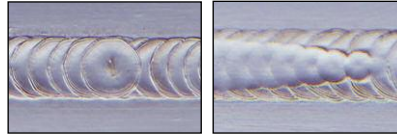


Electronics packaging

Real-time Power Feedback for precise peak power control of pulse shaping and superior pulse-to-pulse stability



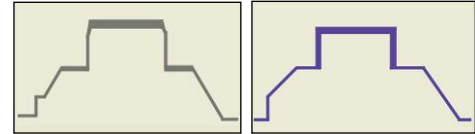
Seam Weld power ramping tapers power for optimal overlap and crack-free hermetic welds



Without ramp-up/down power control function.

With ramp-up/down power control function.

Flexible Waveform Control for welding a wide range of materials



Programmable reference pulse shape.

Actual laser shape.

TECHNICAL SPECIFICATIONS

	ML-2551A	ML-2550A	ML-2651B	ML-2650B
Wavelength	1064 nm			
Average power	300 W	400 W	500 W	600 W
Pulse energy @ 10 mS	50 J	80 J	80 J	100 J
Peak power	5.0 kW	8.0 kW	8.0 kW	10.0 kW
Pulse width range	0.25 to 99.9 ms (≥5.0 ms: 0.1 ms/step <5.0 ms: 0.05 ms/step)			
Repetition rate	500 Hz			
Pulse shaping feature	Yes			
Aiming laser	Diode			
Number of outputs	Up to 4			
Energy share outputs	One group of up to 4, or two groups of 2			
Time share outputs	Up to 4			
Fiber core diameter (SI or GI fibers)	0.3, 0.4, 0.6, 0.8, 1.0 mm	0.4, 0.6, 0.8, 1.0 mm	0.4, 0.6, 0.8, 1.0 mm	0.4, 0.6, 0.8, 1.0 mm
Datacom	8/7 data, 2/1 stop bits, even/odd parity, RS485/422			
Power requirements	220 VAC +10%/-15%, 50/60 Hz ±3%, 3-phase for "A" lasers 400 VAC +10%/-15%, 50/60 Hz ±3%, 3-phase for "AE" lasers			
Line current	43 A		84 A	
Cooling method	Water			
External cooling water requirements	4.2 gal./min. (16 liters/min) @86° F (30° C) 6.6 gal./min. (25 liters/min) @95° F (35° C) 1 bar (14.7 psi) minimum differential pressure 3 bar (44.1 psi) maximum inlet pressure		6.6 gal./min. (25 liters/min) @77° F (25° C) 14.5 gal./min. (55 liters/min) @90° F (32° C) 1 bar (14.7 psi) minimum differential pressure 3 bar (44.1 psi) maximum inlet pressure	
Cooling water inlet diameter	0.591 in (15 mm)		0.748 in (19 mm)	
Ambient operating temperature	40 - 95° F (5 - 35° C)			
Humidity	85% non-condensing @ 77° F (25° C)			
BTU/Hr @ 100% duty cycle (minimum req.) (tons of cooling)	40,300 (3.5)		59,400 (5)	

WEIGHT & DIMENSIONS

	ML-2551A	ML-2550A	ML-2651B	ML-2650B
Dimensions (L x W x H)	53.1 in x 20.9 in x 46.1 in (1350 mm x 530 mm x 1170 mm)		70.1 in x 21.6 in x 47.2 in (1780 mm x 550 mm x 1200 mm)	
Weight	882 lb (400 kg)		1191 lb (540 kg)	



AMADA WELD TECH INC.

1820 S. Myrtle Ave. • Monrovia, CA 91016 US
 T: (626) 303-5676
info@amadaweldtech.com • www.amadaweldtech.com
 ISO 9001 Certified Company • 24/7 Repair Service: 1-866-751-7378

AMERICAS

AMADA WELD TECH
 (Midwest Technical Center)
 Detroit, Michigan
 T: (248) 313-3078
midwestsales@amadaweldtech.com

AMADA WELD TECH DO
 LTDA.
 São Paulo, Brasil
 T: +55-11-4193-3607
antonio.ruiz@amadaweldtech.com

EUROPE

AMADA WELD TECH
 GmbH
 Munich, Germany
 T: +49-89-839403-0
infode@amadaweldtech.eu

ASIA

AMADA WELD TECH
 CO., LTD.
 Isehara, Japan
 T: +81-4-7125-6177
sales@miyachi.com

AMADA WELD TECH
 KOREA CO., LTD.
 Seoul, Korea
 T: +82-31-8015-6810
sales@amadaweldtech.co.kr

AMADA
 (THAILAND) CO., LTD.
 Bangkok, Thailand
 T: +66-2170-5900
info@amada.co.th

AMADA WELD TECH
 INDIA PVT., LTD.
 Bangalore, India
 T: +91-80-4092-1749
info@miyachiindia.com

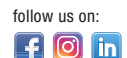
AMADA WELD TECH
 (Mexico Office)
 El Paso, Texas
 T: (915) 881-8765
mxsales@amadaweldtech.com

AMADA WELD TECH
 SHANGHAI CO., LTD.
 Shanghai, China
 T: +86-21-6448-6000
jwu@msc.miyachi.com

AMADA WELD TECH
 TAIWAN CO., LTD.
 Taipei, Taiwan
 T: +886-2-2585-0161

AMADA
 VIETNAM CO., LTD.
 Ha Noi, Vietnam
 T: +84-4-6261-4583

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