Laser Soldering

MLU-808FS

Laser Soldering System

Desktop robot + Laser Oscillation Unit + Laser Controller
J-CAT300 MLU-808FS

ALBA-Mini FS

Compact Laser Soldering Unit

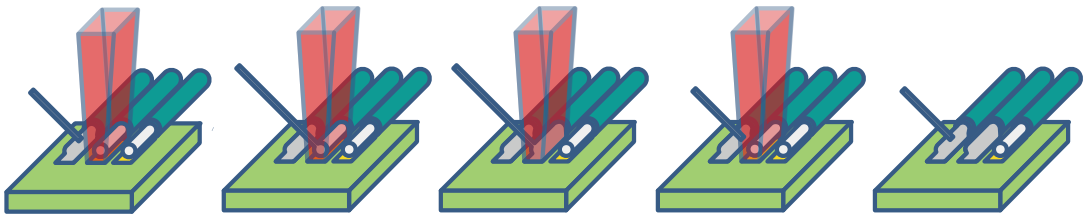
Laser Controller
ALBA-Mini FS

What is Laser Soldering?

It is non-contact soldering that heats up the target with a high energy light emitted from an oscillated laser diode and is focused with a lens.

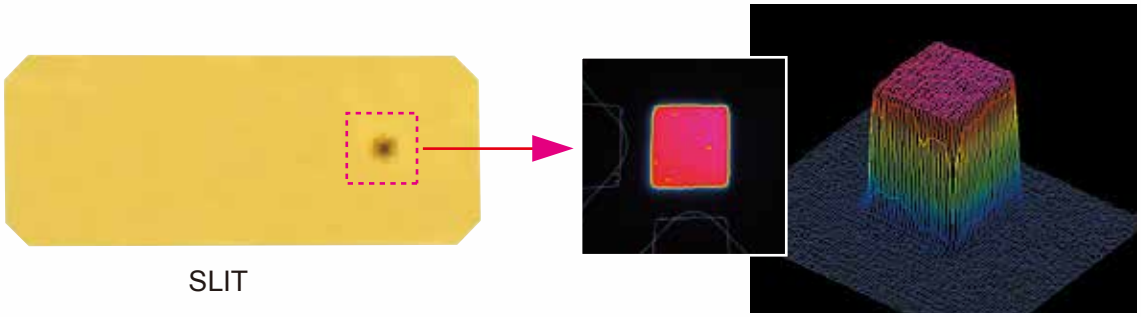
Laser Soldering Basic Process

The laser soldering process depends on the type of solder to be used (wire, pre-form or paste).
In the case of solder wire, laser irradiation is performed in advance to the joint area (Pre-heating). This is the most important process in order to wet and allow the solder to flow easily when supplying the solder wire to the joint area.



SLIT Beam Option

Although the laser beam shape is generally circular, this originally developed SLIT plate (metal plate with a hole) enables virtually any type of laser beam shape. This allows the beam to match the shape of the components and the pads to be soldered.



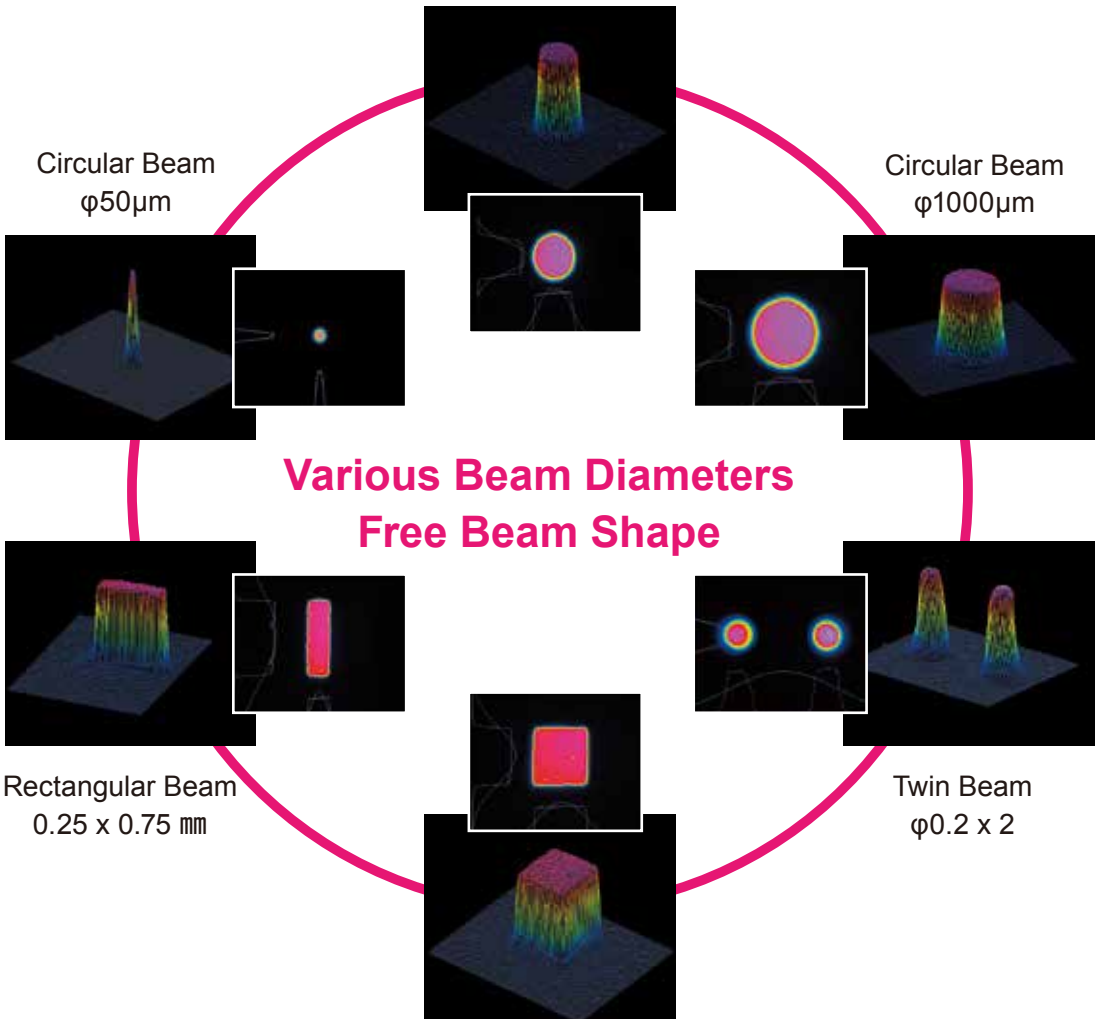
SLIT

Square Beam

Circular Beam
φ500μm

Circular Beam
φ50μm

Circular Beam
φ1000μm



Rectangular Beam
0.25 x 0.75 ㎜

Twin Beam
φ0.2 x 2

Square Beam
0.8 x 0.8 ㎜

Temperature Control Unit TCU-1000 (Option)

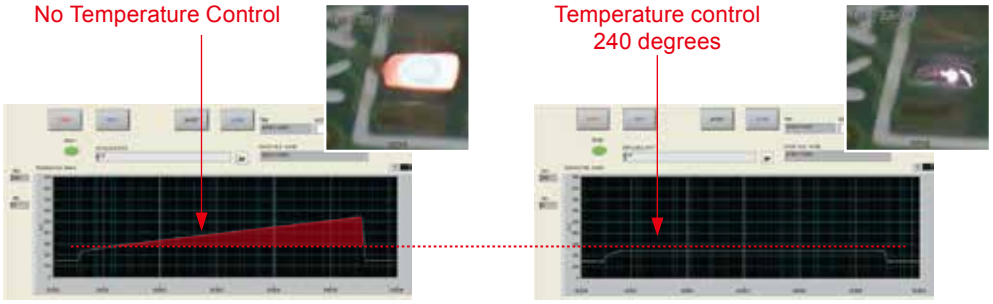
* Option only for MLU-808FS

This non-contact radiation thermometer (minimum φ0.25mm) measures the temperature of the soldering point in real time.

By sending the temperature data to the laser controller, it controls the laser power by temperature.

This prevents any unexpected temperature rise during soldering, and then it achieves stable soldering by controlling the soldering temperature.

Comparison of Temperature Data



Lens Variety

The type of lens to form a laser beam is composed of two components, the “Input lens” and “Output lens”.
With the combination of these lenses, over 100 diameter variations can be achieved.

Specifications

Model			MLU-808FS	ALBA-Mini
Material			Semiconductor Laser	
Oscillation			CW (Continuous Wave)	
LD Type			Fiber Coupling	
LD Output			35W / 45W	30W / 50W / 80W
Wavelength			808nm	808nm or 980nm
Guide Beam			◉	
Halation Prevention			◉	
LD Cooling System			Electric Cooling	
Coaxial Observation Function			◉	
Fiber Core Diameter			ϕ200μm / ϕ400μm	
Fiber Length			3m	1.5m (OP 3m)
Focused Beam Diameter			ϕ50μm ~ 8000μm	
Focal Length			10mm ~ 200mm	
Focused Beam Shape			Circular / Rectangular / Free Shape by SLIT option	
Temperature Control			Available	Not Available
Parameter Control Mode	Time	Setting Resolution	0.1sec / 0.01sec	0.01sec
		STEP	1～100 STEP	15 STEP
		Time Setting	1 STEP = 0.1sec (Max: 0.1sec × 100STEP = 10sec)	1 STEP = 0.05sec ~ 60sec (Max: 60sec × 15STEP = 900sec)
	Current (A) Control	Setting Resolution	0.1A	0.1A
Registered Waveform Capacity			16	63
Interface			Input Terminal x 1 Sig. OUT (BNC) x 1 CURR. MONI (BNC) x 1 RS232 x 1 Analog Input (0~5V) x 1	Parallel I/O (D-Sub 25 Pins Male) x 1 RS232 x 1 Analog Input (0~5V) x 1
Dimension W x D x H	Laser Coaxial Head		160.5 x 114 x 366 mm (Maximum size)	
	Laser Oscillation Unit		270 x 260 x 230 mm	—
	Laser Controller		430 x 350 x 149 mm	188 x 302 x 237 mm
Weight	Laser Coaxial Head		Approx. 1kg	
	Laser Oscillation Unit		Approx. 6.5kg	—
	Laser Controller		Approx. 16kg	Approx. 22kg
Power			Single Phase AC100V / AC220V±10% 50/60Hz	Single Phase AC100V～240V 50/60Hz