

SL-300A
High Precision Weld Heads

The SL-300A electromagnetic weld head system (U.S. Patent #5386092, #5225647) is comprised of a linear magnetic force actuator and a microprocessor-based electronic control, providing a precisely controlled weld force profile for miniature parts welding.

By showing actual displacement (set-down) with 0.0001 inch (2.5 µm) resolution, the graphical screen allows the user to fine tune the weld time, follow-up force, and weld energy relationships between the SL-300A and the external welding power supply. The built-in displacement monitoring feature can be used to optimize the weld and isolate potential quality problems.

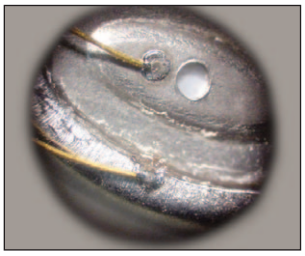
KEY FEATURES

- High speed resistance spot welding weld head
- Programmable force and weld positions
- Excellent force and position repeatability
- Displacement monitoring
- I/O ports for automation

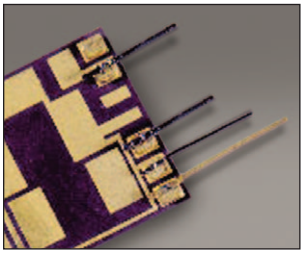
TYPICAL APPLICATIONS



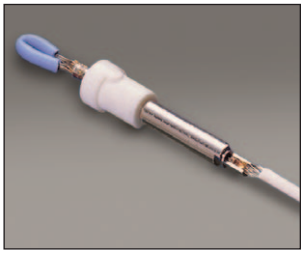
Squib weld



Hearing aids



Fine wires



Medical devices

TECHNICAL SPECIFICATIONS

Electronic Weld Head Control Specifications	
Line voltage (input)	100, 115, 208, or 230 VAC, ±13%, 50/60 Hz, single phase
Input circuit rating	100 to 115 VAC: 15 A; 208 to 230 VAC: 8 A
Operating temperature range	0 to 40° C
Weld force	2 to 20 lb, (0.9 to 9.1 kg) (9 to 89 N)
Follow-up weld force	2 to 50 lb, (0.9 to 22.7 kg) (9 to 222 N)
Squeeze period	1 to 999 ms
Weld period	0.1 to 99.9 ms
Delay period	0.1 to 99.9 ms
Follow-up force period	1.0 to 9.9 ms
Up-stop position	0.006 in to 0.999 in (0.3 mm to 25.4 mm)
Search position	0.005 in to 0.998 in (0.2 mm to 25.3 mm)
Graphical weld display	Graphical display of programmed weld force profile and actual displacement.
Weld force profiles	Write/save 128 different weld force profiles. Schedules 1 through 127 can be protected. Schedule 0 is used as a scratchpad for schedule development.
Object detection	Detects the presence of objects located directly in the electrode path between the up-stop position and the search position and will automatically bring the electrode back to the up-stop position.
Run/dress mode	Provides adjustable electrode force to easily clean electrodes and then automatically re-calibrates the absolute position of the closed electrode tips.

Electronic control	
Control signal input	Provides control for the following remote control signals: Emergency Stop, Weld Inhibit, and Remote Schedule Selection. Use dry relay contacts, optocouplers, or 5 VDC logic levels.
Foot switch	Provides process initiation using a 2-level foot switch. For automated installations, use dry relays contacts, optocouplers, or 5 VDC logic levels.

Output signals	
Control signal output	5 VDC logic, 35 ma (max) sink or source. Designed for selecting weld schedules on welding power supplies.
Solid state relays	2 user-programmable solid state relays: AC – 24/115 VAC @ 15 VA; DC-24 VDC @ 15 VA.
Weld fire switch	Solid state relay output for initiating the power supply weld current.
RS485/RS232 data	Transmit weld displacement data to a user provided serial data logging device.

Weld head Specifications– SL-300A	
Stroke (maximum)	0.999 in (25.4 mm)
Force (maximum)	50 lb (22.7 kg)
Force (weld)	2 to 20 lb (0.9 to 9.1 kg)
Force rating (continuous)	7.1 lb (3.2 kg)
Force linearity	±5% of setting or ±0.3 lb (136 gm)
Force repeatability	±0.1 lb (45 gm)
Force response time	Assuming no shaft movement, the rise time going from 0 lbs force to a step input force of 50 lb (22.7 kg) is 1 ms maximum.
Slew rate (maximum)	30 in/sec (76.2 cm/sec.)
Operating temperature (maximum)	93° C

WEIGHT & DIMENSIONS

	Control	Weld Head
Dimensions (W x D x H)	10.5 in x 15.1 in x 8.5 in (266.7 mm x 383.5 mm x 215.9 mm)	2 in x 14 in x 4 in (50.8 mm x 355.6 mm x 101.6 mm)
Weight	45 lb (20.4 kg)	13 lb (5.9 kg)

CE

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