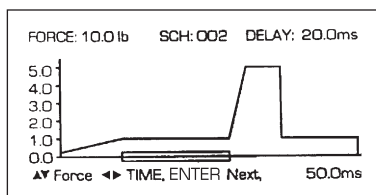




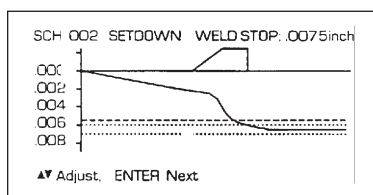
Series 300

High Precision Weld Head System with Force and Displacement Control

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



Program Mode – Weld Force Profile



Run Mode – Actual Weld Displacement

KEY FEATURES

- **Electronic control and traceability of all weld head functions.** Ensures repeatable weld head schedules that can be electronically dictated and documented for GMP, TQC, and ISO 9001.
- **Weld to displacement.** Ensures consistent weld nugget size by controlling the amount of material collapse or set-down; excellent diagnostic tool for monitoring welding process.
- **Programmable follow-up force.** Ensures consistent weld quality by preventing molten metal from escaping from the weld joint. Superior to pneumatic or spring weld force systems.
- **I/O ports for automation applications.** Remote displacement or weld force profile schedule selection for simple automated applications via RS232/RS485 communications.

The Series 300 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 .0001 inch (2.5µm) resolution, the graphical screen allows the user to “fine tune” the weld time, follow-up force, and weld energy relationships between the Series 300 and the external welding power supply. The built-in displacement monitoring feature can be used to optimize the weld and isolate potential quality problems.

SPECIFICATIONS

Electronic Control – Model 350	
Line Voltage (Input)	100, 115, 208, or 230 VAC, ±13%, 50/60 Hz, single phase
Input Circuit Rating	100 to 115 VAC: 15A; 208 to 230 VAC: 8A
Operating Temperature Range	0 to 40°C
Weld Force	2 to 20 lbs, (0.9 to 9.1 Kg) (9 to 89 N)
Follow-up Weld Force	2 to 50 lbs, (0.9 to 22.7 Kg) (9 to 222 N)
Squeeze Period	1 to 999 msec
Weld Period	0.1 to 99.9 msec
Delay Period	0.1 to 99.9 msec
Follow-Up Force Period	1.0 to 9.9 msec
Up-Stop Position Inches (mm)	.006 to .999 (0.3 to 25.4)
Search Position Inches (mm)	.005 to .998 (0.2 to 25.3)
Graphical Weld Display	Graphical display of programmed weld force profile and actual displacement.
Weld Force Profiles	The user can 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.
Physical Characteristics	
Dimensions H x W x D Inches (cm)	8.5 x 10.5 x 15.1 (21.6 x 26.7 x 38.4)
Weight – Lbs. (Kg)	45 (20.4)
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 Unitek Peco power supplies.
Solid State Relays	2 user programmable Solid State Relays: AC – 24/115 VAC @ 15VA; DC-24 VDC @ 15VA.
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 – Model 301 and Model 302	
Stroke (Maximum) Inches (mm)	.999 (25.4)
Force (Maximum) Lbs. (Kg)	50 (22.7)
Force (Weld) Lbs. (Kg)	2 to 20 (0.9 to 9.1)
Force Rating (continuous) Lbs. (Kg)	7.1 (3.2)
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 lbs (22.7 Kg) is 1 msec maximum.
Slew Rate (Maximum)	30 in/sec (76.2 cm/sec.)
Operating Temperature (Maximum)	93° C
Physical Characteristics	
Dimensions L x W x D Inches (cm)	14 x 2 x 4 (35.6 x 5.1 x 10.2)
Weight: Lbs (Kg)	13 (5.9)

ORDERING INFORMATION

Model	Description
301H/xxxV	Includes Model 350 electronic head control and Model 301H in-line weld head. Specify line voltage of 100V, 115V, 208V, or 230V when ordering.
302H/xxxV	Includes Model 350 electronic head control and Model 302H offset weld head. Specify line voltage of 100V, 115V, 208V, or 230V when ordering.
Required Accessories	
MK301	Bench mounting kit for 301H system, includes stand, lower quick-change holder, head adapter plate, and one set of 2/0 AWG weld cables. Accepts 1/8 inch, 1/4 inch, 6mm, and 3mm electrodes.
MK302	Bench mounting kit for 302H system, includes stand, offset bottom electrode holder, head adapter plate, and one set of 2/0 AWG weld cables. Accepts .125 inch diameter electrodes.
FS2L	Two level footswitch used to initiate welding process.

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