

WS500 8 Program weldtimer



The WS500 is a high accuracy resistance welding timer intended for use in conjunction with almost any type of resistance welding machines. The user programming is very simple using a built-in tactile keypad in conjunction with an back lit LCD. The timing is controlled and set in terms of one cycle increments based on the supply frequency (50 or 60 Hz). The WS500ms provides eight programs and a versatile range of functionality as shown overleaf.

The WS500 controller is designed for use in most resistance welding applications including Spot, Seam, Projection, Micro-welding and simple Automation. Because of its highly compact construction it lends itself to integration into customer control cabinets and retro- fits, as well as completely self-contained resistance welding control applications.

The control has a very thin profile and hence they lend themselves to door mounting. Connections to the units are plug-in, resulting in a change over time of just a few minutes. For full functionality please see next page.

WS500 Applications:



Spot

All types of spot welding, including single, repeat, pulsation, single electrode, multi-electrode, and series welding.

Projection

All types of projection welding including multi-projection, annular-ring (spud), single projection and weld nut, including multi-electrode management and dressing.

Seam

All types of seam welding, including continuous, pulsation and wire.

Roll-Spot

Most types of roll – spot welding.

Pulsation

Pulsation welding for thick materials

Micro-Welding

Alternate half-cycle welding for very low power application.

Multi-weld and Cross Wire

Simple multi-welding, low cost and small size allows one control per transformer.

Headline Features:

Standard features: Up to 8 Programs, single gun, double pulse weld sequence, 4 Inputs, 4 Outputs.

Welding Types: Spot, seam, projection, cross wire, multi-welders, micro-welding and simple automation.

Construction: Very compact, door mounting with plug-in two-part terminal blocks.

Programmer: Built in LCD display and touch sensitive keypad.

Power Supply: Separate external power supply required, provided at extra cost 24 volts DC.

WS500 8 Program weld timer — Feature Table

Standard Features 8
Single Spot
Spot Repeat
Retract — Retract/Hi-lift+/Hi-Lift-
Weld counter
Cross interlock
Roll Spot
Pulsation
Seam Modulation
Seam Continuous
Up to 8 programs — external connection
Up to 15 programs — internal selection.
All inputs and outputs 24V DC.



General Information
Built in display/keyboard for programming
Single gun only
Program select - Binary
Four digital inputs (used in various modes)
Four digital outputs (used in various modes)
External weld on/off
External synchronising internal/external
Millisecond timing
Size: 160mm x 122mm x35mm (50mm with connector)
Front panel mounting

Modes of Operation
0. Spot/repeat (EP8)
1. Spot/repeat - X interlock (EP4)
2. Spot /repeat - Retract (EP4)
3. Spot/repeat - Counter (EP4)
4. Spot/repeat - X Interlock, Retract (EP2)
5. Spot/repeat - Counter, Retract (EP2)
6. Spot/repeat - Counter, X Interlock (EP2)
7. Spot/repeat - Counter, X Interlock, Retract (EP1)
8. Spare
9. Spare
10. Spare
11. Roll-Spot (EP8)
12. Seam - Continuous, Modulation (EP8)
NOTE: EP = Externally selectable programs

Counter
Counter now (0..9999).
End count (0..9999).
Stop/continue at end.

Electrical Characteristics
Power supply: 24 volts DC
Quiescent Current: 500mA (no outputs on)
Outputs: Total Number of Outputs = 4 Voltage = 24 Vdc Current = 500 mA Type = current sourcing
Note: The WAV circuit includes a safety relay
Inputs: Total number of Inputs = 4 Voltage = 24 Vdc Current < 10 ma Type = current sinking
Weld Analogue Output = 0-10V

Retract Modes
Retract - Retract output follows retract input
High Lift + : Pulse on Retract input changes Retract state Retract must be off to allow weld.
High Lift - : Pulse on Retract input changes Retract state Retract must be on to allow welding

Weld Program x 8
Pre-squeeze (0..999 ms) (first sequence only)
Squeeze (0..999 ms)
Weld 1 (0..999 ms)
Cool 1 (0..999 ms)
Weld 2 (0..999 ms)
Cool 2 (0..999 ms)
Pulses (1..9)
Hold (0..999 ms)
Off (0..999 ms)
Heat 1 (0..99.9%)
Heat 2 (0..99.9%)

Cross Interlock
Type 1 Ring type interlock of any length
Type 2 Interlock with additional external hardware

Advanced Resistance Welding Control Systems