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WS500 8 Program weld timer

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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 8Programs, 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.

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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.

Counter

Counter now (0..9999).

End count (0..9999).

Stop/continue at end.

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

Cross Interlock

Type 1
Ring type interlock of any length

Type 2
Interlock with additional external hardware

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

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%)

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

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

Advanced Resistance Welding Control Systems

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