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WS700 Weld Processor

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Versatile low cost constant current resistance welding control with built in machine sequencer

The WS700 is a high accuracy resistance weld processor which is easy to use. This control is designed to operate on a wide range of resistance welding machines. The design is very compact with a very extensive range of features. The WS700 provides 64 welding programs and an extended range of functionality including constant current control, current monitoring and built in machine sequencer as well as many other features as shown overleaf.

The WS700 controller is designed for use in the vast majority of resistance welding applications including Spot, Seam, Projection, , Automation and Robot welding. Because of its highly compact construction it lends itself to integration into customer control cabinets and retrofits, as well as completely self contained resistance welding control applications.

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

WS700 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.

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

Robot Welding
Suitable for most robot welding applications where Fieldbus or Communications Networks are not required.

Headline Features:

Machine sequencer:	250 step machine sequencer allows simple machines to be directly run from the welding control without a PLC or other machine logic.
Current control:	Primary and/or secondary constant current control and % phase angle control.
Standard features:	Up to 64 Programs, single gun, double pulse weld sequence and built-in monitoring.
Welding Types:	Spot, seam, projection, cross wire, multi-welders, simple automation and many robot welding applications.
Micro Welding:	Alternate half cycle welding.
Construction:	Very compact, door mounting with plug-in two part terminal blocks.
Programmer:	Built-in large LCD display and touch sensitive keyboard for programming and monitoring.
Power Supply:	Separate external power supply required, provided at extra cost (24 volts DC).
Serial Port:	RS232 as standard.

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WS700 64 Program weld processor — Feature Table

Standard Features

Spot / Repeat / Roll-spot / Seam (dual heat)/ Seam or (pre-heat) welding.

Single gun operation.

Dual weld intervals plus pulsation.

Constant current regulation

Weld Counter (With programmable blocking)

Alternate Half Cycle welding

Up to 64 programs (internal or external selection)

Current monitoring (high / low / pre-limits)

Built in 'Pop Up' weld current meter

Proportional valve / (0..10V).

Pressure / (high/ low limits)

Contactor timer.

Retract/high-lift control.

All inputs and outputs 24V DC.

Toroid and PV calibration functions.

Toroid test function.

Large LCD with 4 lines x 20 Characters

Touch sensitive programmer keypad

Machine sequencer logic

RS232 port, for PC or printer communications.

Optional Windows based programming software.

Linked programs for complex sequences.

Head Lockdown function to capture bad welds.

Weld History log.

Programmable event outputs

Air/Water services monitor

Machine Sequencer

Statements	-	250 max
Outputs	-	8
Inputs	-	16
Memory	-	8
Counters	-	8
Analogue Inputs	-	1

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

Counter

Counter now (0..9999).

End count (0..9999).

Stop/continue at end.

Printer

Print condition (All/Pass/Fail/Off)

Lines per page

Print Format (Table or ASCII-HEX)

General Information

Blanking On / Off

Primary or Secondary current feedback

Pressure/(2 points, kN / V)

Program select - internal default or external binary

Wait for correct weld pressure prior to weld continue On / Off

Toroid test On / Off

Toroid sensitivity (100..2000 mV/kA)

Toroid scale factor (1..4)

I/O Map (Programmable)

Stop or Continue on fault

16 digital inputs (used in various modes)

8 digital outputs (used in various modes)

Keypad On/Off

Size:
292mm x 172mm x35mm (50mm with connector)

Front panel mounting

Weld Program x 64

Pre-squeeze (0..99 cycles) (first sequence only

Squeeze (0..99 cycles)

Upslope (0-99 cycles)

Downslope (0-99 cycles)

Weld 1 (0..99 cycles)

Cool 1 (0..99 cycles)

Weld 2 (0..99 cycles)

Cool 2 (0..99 cycles)

Balance (Seam only)

Pulses (1..9)

Hold (0..99 cycles)

Off (0..99 cycles)

Pressure/(0..10V)

Heat 1 (0..99.9%)

Heat 2 (0..99.9%)

Current 1 (0..99%) (0...60kA)

Current 2 (0..99%) (0...60kA)

Monitor Limits x 64

Current monitor On / Off

Current low limit, Weld 1 (0..99%)

Current high limit, Weld 1 (0..99%)

Current pre-limit, Weld 1 (0..99%)

Current low limit, Weld 2 (0..99%)

Current high limit, Weld 2 (0..99%)

Current pre-limit, Weld 2 (0..99%)

Pre-limit count (0-99)

Pressure / monitor On / Off

Pressure / low limit (0..99%)

Pressure / high limit (0..99%)

Inputs

Start/Initiate sequence

Weld On/Off

2nd Stage initiate

Retract

Reset Fault

Reset Counter

Program 1 select

Program 2 select

Program 4 select

Program 8 select

Program 16 select

Program 32 select

Stop 1/ Air OK

Stop 2/ Water OK

Gap Switch

Edit Disable

Outputs

Weld Air Valve (WAV)

High Lift Air Valve (HAV)

End Of Sequence (EOS)

Fault

Counter

Contactor

Ready

Low Force Air Valve (LFAV)

Electrical Characteristics

Power supply: 24 volts DC

Quiescent Current: 500mA (no outputs on)

Outputs:
Total Number of Outputs = 8
Voltage = 24 Vdc
Current = 500 mA
Type = current sourcing

Note: The WAV circuit includes a safety relay

Inputs:
Total number of Inputs = 16
Voltage = 24 Vdc
Current < 10 mA
Type = current sinking

Weld Analogue Output = 0-10V

Proportional valve output = 0-10V

Transducer Input = 0 - 10V

Analogue I-O

Analogue Input 0....10 volts

Analogue Input 0....10 volts

Toroid input 150mV/1000 Amps

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