BRANSON

ULTRASONIC ASSEMBLY SYSTEMS

2000X d/aed

- Weld by time, energy, peak power, ground detect, collapse, absolute
- Full VGA touch screen
- Graphing
- Available in 3 frequencies - 20, 30, and 40 kHz
- Digital amplitude setting
- Patented amplitude profiling
- Multiple language choices including Japanese, Korean, and Chinese
- Multiple communications options
- Increased power levels

TOTALLY DIGITAL

DIGITAL CONTROLS

DIGITAL POWER SUPPLY

ADDITIONAL SOFTWARE FEATURES

WELDING | STAKING | INSERTION | SWAGING | FORMING | SPOT WELDING | DEGATING | CUTTING AND SEALING

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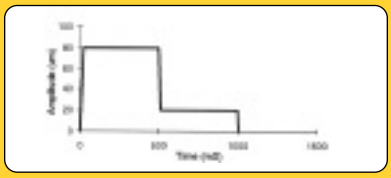
PROCESS CONTROL

- **Multiple weld modes:** weld by time, peak power, energy, distance (absolute and collapse), and ground detect.
- **Patented Amplitude Stepping** for optimization of weld strength and appearance **(Fig.1)**

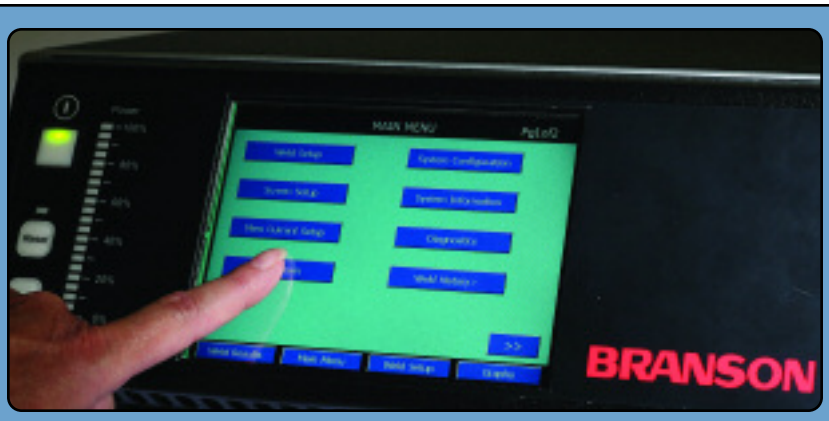


(Fig. 1)

- **Built-in digital amplitude control -** for fine tuning of critical applications.
- **True alarm messages for ease of troubleshooting,** with links to additional information.
- **Self-diagnostics and monitoring -** visual, audible, and logic output alarms.
- **Built-in alarm and cycle counters** to track production.
- **Printing capability -** Provides a record for future comparison and validation. Includes drivers for ESC/P and HPL drivers. Prints single line weld data, print setup, and overlayed color graphs.
- **Sixteen nameable presets** for ease of setup and changeover of applications.
- **Selectable pretriggering -** auto, distance, and time.
- **Password protection** feature for lock-out of unauthorized process changes once the equipment is set up for a specific application.
- **Total cycle time can be displayed** in weld results screen.
- **Available in 3 frequencies -** 20, 30, 40 kHz.
- **Weld results screen** allows user to monitor key operating parameters.
- **VQS℠ (Visual Quality Screen)** provides basic real-time quality monitoring.

COMMUNICATIONS

- **Windows CE Operating System -** a fully-functional Windows program specifically designed for non-PC devices
- **Ethernet -** permits easy access for networking the welder
- **USB -** the addition of this port allows for any USB device to be linked to the unit, including mouse, memory sticks, printers, etc.
- **X-Net -** an embedded program that allows for remote monitoring and networking
- **External VGA port -** allows for the addition of either a remote monitor or touch screen to the system

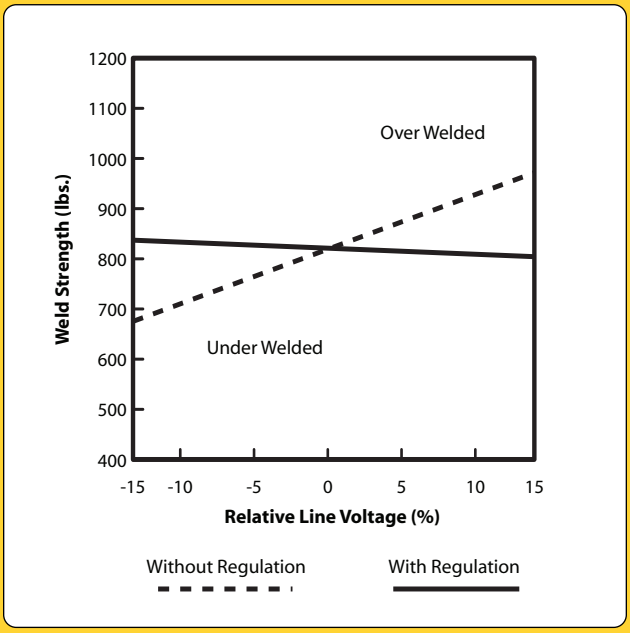


USER INTERFACE

- **Full VGA touch screen**
- **Simple navigation** through easy access touch keys
- **Process graphing with graph overlay capability -** graphing of power, collapse distance, amplitude, force, velocity, and frequency
- **PMC - Power Match Curve:** a feature that allows the user to develop a standard power graph, then set limits for process monitoring.
- **Choice of language for message display and printout -** English, French, German, Italian, Spanish, Japanese, Korean, traditional and simplified Chinese
- **Two write-in fields for additional setup information**
- **USB port** for data collection, mouse, printer, etc.
- **Horn signature graph** with comparison of up to three graphs

TOTALLY DIGITAL POWER SUPPLY

- **True Digital Autotune with Memory (AT/M) -** Provides fully-automatic tuning and stores horn frequency at the end of each weld.
- **Total Amplitude Control -** Utilizing Branson's digital power supply technology, you have complete control of amplitude throughout the weld cycle: programmable starting ramp, digital setting of weld amplitude or patented amplitude stepping, and energy braking.
- **Programmable Starting Ramp -** Adjustable starting ramps from 10 milliseconds to 1.0 second to accommodate starting characteristics of a wide range of horns. This feature makes it easier to start more difficult horns. When utilizing smaller horns, you can minimize the starting ramp reducing cycle times.
- **Energy Braking -** a controlled stoppage of the ultrasonic stack. This feature eliminates the traditional "ring down" of the stack creating a more consistent energy input into the parts. Small horns can actually be stopped faster, increasing throughput in high-speed automation.
- **Auto Seek automatically measures stack frequency and stores it in memory.** Five selectable Auto Seek choices are available.
- **Line / Load Regulation -** Corrects for variations due to power line fluctuations and varying load conditions through Branson's patented closed-loop amplitude control. Output amplitude is maintained with a variation of only ±2% with line voltage variations of ±10%, regardless of load, improving weld consistency **(Fig. 2)**.



(Fig. 2)

- **System Protection Monitor (SPM) -** Five levels of power supply protection are provided: 1. phasing, 2. over voltage, 3. over current, 4. over temperature, 5. power.
- **Automation interface** is available for direct hookup with PLCs and PCs. Required automation I/Os are provided through a 24V DC logic interface.

ACTUATOR

- **Settable pressure and downspeed**
- **Custom single-turn flow control** provides for more accurate setting of downspeed, and easier resetting during application changeover.
- **Variable Dynamic Triggering provides consistent weld quality** by triggering ultrasonic vibrations after a preset force is applied to the part.
- **Dynamic Follow-through ensures the smooth, efficient transmission of ultrasonic energy into the part** by maintaining horn/part contact and force.
- **Enhanced ergonomics -** easily accessible controls on actuator with improved visibility.

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AVAILABLE OPTIONS

- SPC software
- Touch screen monitor
- Base-mounted leveling plate for horn/fixture/part alignment
- Solid mount boosters
- Longer columns - 4' to 6' lengths
- Ground detect cable

2000X d/aed SPECIFICATIONS

2000X d Power Supply	20:1.25	20:2.5	20:4.0	30:0.75	30:1.5	40:0.4	40:0.8
Output power:	1250 Watts	2500 Watts	4000 Watts	750 Watts	1500 Watts	400 Watts	800 Watts
Line voltage:	117V AC * 50/60 Hz, 1Ø	200-240 V AC 50/60 Hz, 1Ø	200-240 V AC 50/60 Hz, 1Ø	117 V AC * 50/60 Hz, 1Ø	117 V AC * 50/60 Hz, 1Ø	117 V AC * 50/60 Hz, 1Ø	117 V AC * 50/60 Hz, 1Ø
Max. current:	14 amps max.	14 amps max.	19 amps max.	10 amps max.	10 amps max.	5 amps max.	10 amps max.
Receptacle required:	NEMA 5-15R	NEMA L6-20R	NEMA L6-20R	NEMA 5-15R	NEMA 5-20R	NEMA 5-15R	NEMA 5-15R
Frequency:	20 kHz	20 kHz	20 kHz	30 kHz	30 kHz	40 kHz	40 kHz
Max. cycle rate:	80 cpm (application dependent)						
Ambient temp. range:	41-122˚ F (5-50˚ C) (104˚ F / 40˚ C max @ 90% humidity)						
External inputs/outputs:	9-pin start connector; 44-pin user I/O connector						

* 200-240 V AC optional.

Actuator Model	aed 1.5	aed 2.0	aed 2.5	aed 3.0	aed 3.25
Max. clamp force on part (at 100 psig/690 kPa) and 4" stroke	130 lbs. 578 N	270 lbs. 1.2 kN	440 lbs. 1.96 kN	640 lbs. 2.84 kN	770 lbs. 3.42 kN
Dynamic triggering range:	5 - 159 lbf. 22 - 707 N	5 -282 lbf. 22 N - 1.25 kN	10 - 440 lbf. 44 N - 1.96 kN	10 - 636 lbf. 44 N - 2.83 kN	10 - 725 lbf. 44 N - 3.22 kN
Dynamic follow-through range:	5 - 159 lbf. 22 - 707 N	5 -282 lbf. 22 N - 1.25 kN	10 - 440 lbf. 44 N - 1.96 kN	10 - 500 lbf. 44 N - 2.22 kN	10 - 500 lbf. 44 N - 2.22 kN
Stroke length:	4" (101.6 mm)				
Pneumatic requirement:	Clean (5 micron, filtered), dry, non-lubricated air between 35 and 100 psi (130 - 690 kPa).				

All specifications subject to change without notice. All dimensions are nominal.
All units are CE compliant and comply with FCC rules and regulations governing radio frequency interference.
Note: *All sales shall be subject to the Supplier's terms and conditions of sale as described in Branson's quotations and sales contracts.*

WARRANTY

The Branson 2000X Series ultrasonic assembly systems carry a three-year warranty on materials or workmanship. Note: This warranty applies to equipment purchased and operated in North America. For warranty information on units purchased and/or operated outside the U.S. contact your local representative.

EMERSON
Industrial Automation

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