900M

BRANSON

Microprocessor-Controlled 20 kHz Ultrasonic Plastics Assembly Systems

Model 905 - 500 Watts
Model 910 - 1000 Watts
Model 920 - 2000 Watts

900M
QUALITY AND RELIABILITY PLUS INNOVATION

At the forefront of ultrasonic technology, Branson's 900M Series brings plastics assembly fully into the computer age — meeting the needs of industry to improve part quality, supply critical production data, and provide higher reliability.

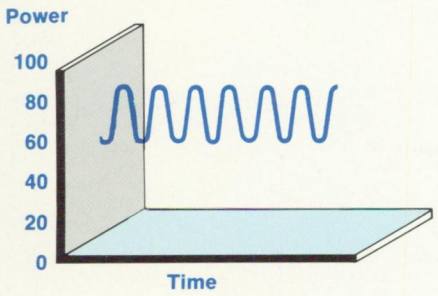
The microprocessor-controlled 900M power supplies provide **advanced process control, setup accuracy and repeatability, and communications interface capablities** for use in plastic parts production lines. From manual and simple automation setups to the most sophisticated, computer-integrated manufacturing (CIM) factories with statistical process control. In addition, built-in **self-diagnostic capabilities** speed setup and troubleshooting.

These software advantages are based in advanced hardware and circuit technologies to provide the most reliable ultrasonic assembly equipment available.

5 WELDING MODES
FOR OPTIMUM PROCESS CONTROL

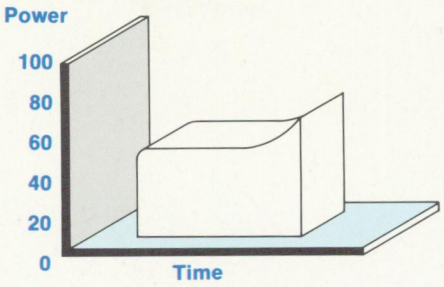
The advanced microprocessor technology of the 900M Series provides optimum flexibility in setup and operation. The choice of five welding modes gives the user greater control of the welding process for increased productivity, better part quality, and fewer rejects.

1. Continuous Ultrasonics



Ultrasonics are either on or off, with externally controlled triggering, allowing use of a hand gun or constant ultrasonics. Adding a power window gives this mode greater process control than ever before possible.

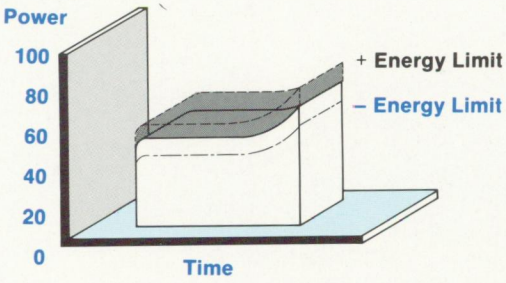
2. Conventional Time



Set weld and hold times, and afterburst delay and duration times if required. Ultrasonics are turned on for weld time, pressure is maintained for hold time, and afterburst is applied if selected.

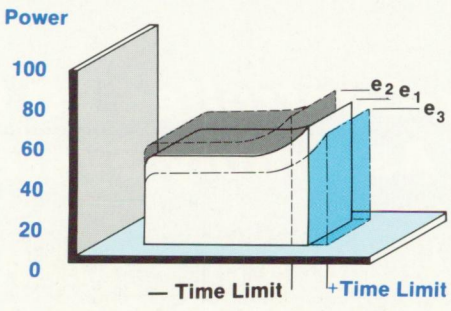
The accuracy of digital timing enables precise control for better and more consistent part quality.

3. Time with Energy Limits



This new mode sets a specific weld time (as in conventional time mode) while delivering energy within a set of limits. If the actual energy delivered to the parts does not fall within the allowable range in the set time, an alarm occurs.

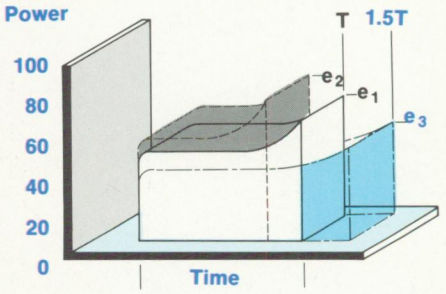
4. Energy with Time Limits



$e_1 = e_2 = e_3$

Set predetermined constant amount of energy required to achieve acceptable parts; a time "window" is set using upper and lower time limits, within which the energy level must be reached. If the energy level is not reached within the prescribed window, welding ceases and an alarm occurs.

5. Time/Energy Compensation (TEC)



T = Weld Time
e_3 = Energy — limit
e_1 = Normal Energy
e_2 = Energy + limit

Expands the 'time with energy limits' mode. You set specific weld time and an acceptable energy range. If energy into the parts does not meet the minimum energy setting within the set time, weld time may be extended up to 50% of the originally set time. If the applied energy still does not meet the set minimum, an alarm occurs. Ultrasonics will cease (1) if the upper energy limit is reached, (2) when the actual time setting is reached (and energy is in the acceptable range), (3) when the lower energy limit is reached within the extended time period, or (4) when the set time plus 50% is reached.

The added time feature of the new TEC mode gives further compensation for greater control of the weld cycle — increasing the number of parts that are acceptable.

Plus one more option for greater control - a Power Window may be added to any of the five modes. Upper and lower power limits are set; if the peak power delivered during the weld cycle is not within the set limits, an alarm is sounded.

900M

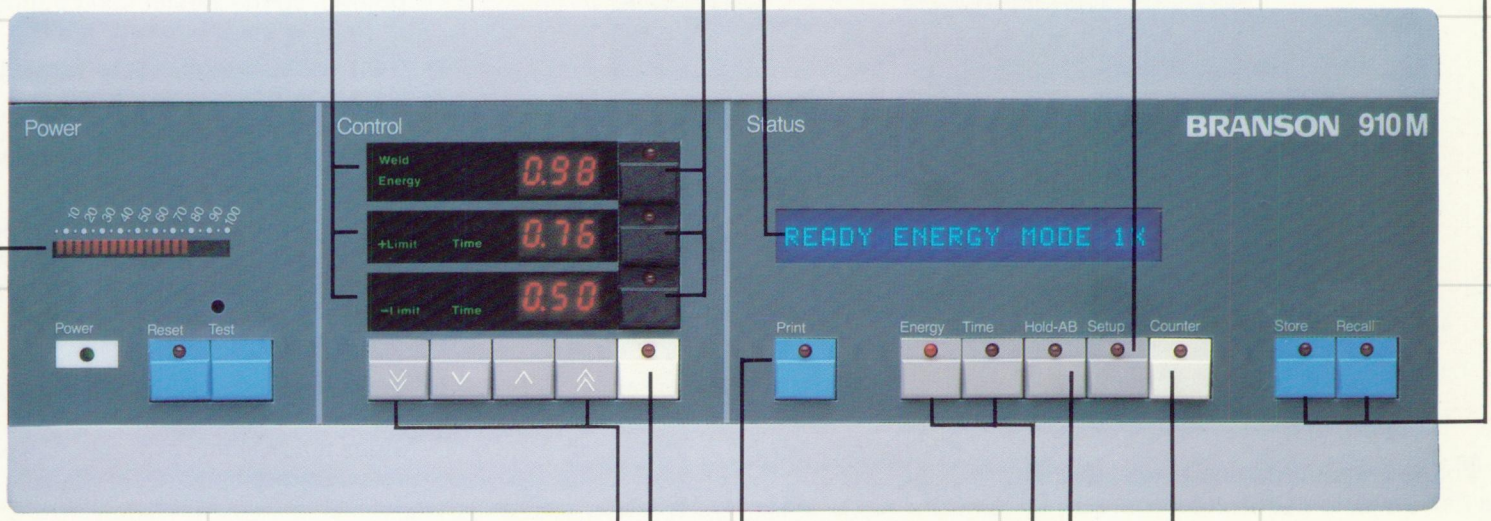
Real parameter labels and numbers of settings are displayed. LEDs are easy to read. **Digital displays** give precise settings for repeatable accuracy — every cycle.

Easy, direct selection of parameters to be modified. Active choice is lighted.

20 Character Vacuum Fluorescent (VF) Display provides quick, accurate reference for operating and troubleshooting. Easily read and understood, the display shows current operating status, as well as prompts and error/fault messages.

Ready access to current state of setup options and external switches on VF display for monitoring or changes.

Store and recall up to 9 complete operating setups for fast changeover of applications.



Fast-response LED meter for power loading provides better visibility and the retention of the peak cycle power.

Fast and slow up/down keys make setup easy and accurate. No numeric keypad is necessary.

Set **maximum and minimum power limits** in any operating mode for further cycle control. The actual percentage of power supplied will also be shown on the VF display.

Select the **operating mode.** LED window readouts and VF display message will correspond with the mode.

Set **print output characteristics,** e.g., type, format, baud rate, information to be printed.

Set or display **hold, afterburst delay, and afterburst duration times.**

Built-in counters show current value on VF for machine cycles and alarms.

DIRECT PARAMETER ENTRY —

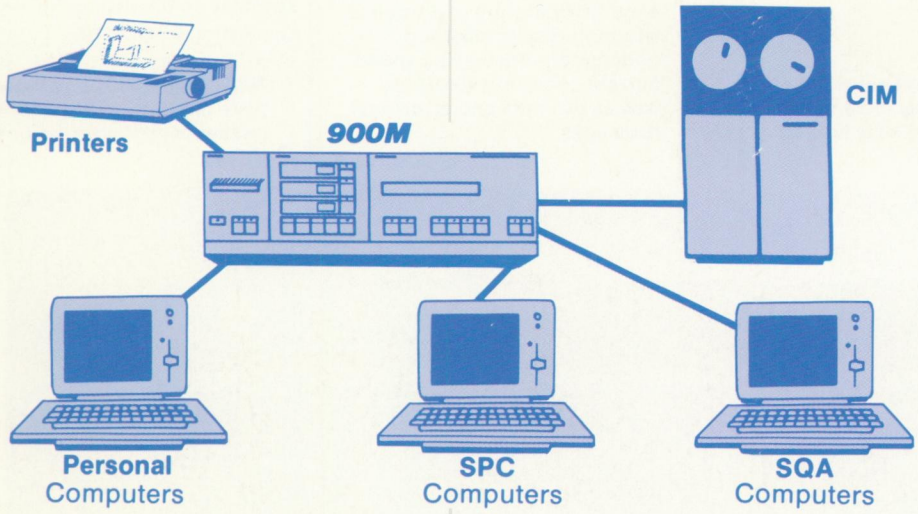
REAL TALK, REAL NUMBERS = EASY SETUP

Setup of the 900M is easy in any mode. All information is directly available, not buried through access or function codes. Branson's Direct Parameter Entry (DPE) is easy to learn, and provides accurate, logical access to parameter setup, operating controls, and diagnostic information.

Weld, system, and communications parameters are easily set by using pushbutton keys on the front panel. Parameter displays are adjusted by pressing the select key next to that parameter, and then the fast or slow up/down keys to change the setting.

- **Tactile keys** — not membrane — let you know your input is entered.
- **Function or mode labels on each key** eliminate the need to memorize programming procedures or codes.
- **Choice of six languages** for message display: English, French, German, Italian, Spanish, and phonetic Japanese, for ease of use in worldwide operations and multilingual workplaces.
- **Lockout of front panel switches** is provided by an internal switch, rear panel input, or through computer interface, preventing unauthorized parameter changes to the setup.

FLEXIBILITY FOR AUTOMATION 900M



Today's manufacturing takes place in a flexible-automation environment with computer-controlled multi-functional equipment, where even small batches of parts can be produced economically. If production flow is stopped, the problem/cause must be determined and fixed quickly. The 900M's **self-diagnostics and cycle monitoring capabilities** provide fast, accurate troubleshooting and minimize downtime.

Visible and audible alarms identify machine faults, setup errors, and assembled parts that do not meet weld parameters. Alarms sensed by the system can be communicated outside the power supply individually for monitoring cycles and sorting suspect parts.

COMMUNICATIONS INTERFACING

The 900M Series can interface with any controlling/monitoring device — from simple relay logic-controlled automation and programmable controllers, to printers, monitors, computers, and modems. Simultaneously. Use simple relays or other 24V DC automation integration, or Branson's exclusive bidirectional DataLink and the External Communications Interface (ECI).

The ECI enables the 900M to be fully integrated into a manufacturing operation to simultaneously send and receive process parameters and production data. The DataLink checks and verifies all data transmissions for accuracy and completeness.

- **RS-232C serial and Centronics parallel ports** on the ECI to allow the 900M to interface with existing data communications hardware.
- **A buffer on the ECI allows off-line storage of welding information** to be printed, so the welder can continue to cycle while the printer prints.
- **Text and/or graphic data for statistical logging may be printed or viewed** on alarm cycles, every cycle, or periodic sampling cycles, in any combination.
- **24V DC interface** provided for direct interface with controls and external devices — easily connected industry standard for tie-in with programmable controllers.
- **0-5 Volt output** can be attached to standard recording devices; provides quick, easy, accurate power measurement.

HARD FACTS ON HARDWARE

The 900M power supplies are produced with improved circuit design and technology — building on the reputation of all Branson power supplies for quality and reliability — to meet the most demanding operating requirements, for all ultrasonic assembly techniques in all markets.

The 900M power supplies feature Branson's exclusive **System Protection Monitor/Autotune (SPM/AT)** circuitry. The improved SPM ensures maximum reliability by necessitating correct operating conditions, terminating ultrasonic power when the system is operated under adverse conditions, to protect power supply and other system components.

The patented **autotune** feature virtually eliminates manual adjustment of the power supply to the resonant frequency of the converter, booster, and horn. In the 900M Series, this feature allows the power supply to compensate for changes in horn frequency that occur over time during production due to increased temperatures, wear to the horn face, or material buildup on the horn.

THE 20 KHZ 900M SERIES FROM BRANSON: NOT JUST-IN-TIME — AHEAD OF ITS TIME.

BRANSON
SONIC POWER COMPANY
Eagle Road, Danbury, CT 06810-1961
(203) 796-0400

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