

Low Power Ultrasonic Systems



Low Power Ultrasonic Systems 2000 LPt/LPe

- Hand-Held Systems
- Automation Components
- Line Regulation
- Load Regulation
- Auto Seek with Memory
- System Protection Monitor with Autotune
- Multiple Welding Modes with Ground Detect Available
- CE and CSA Certified

The 2000LP family of low power systems are Branson's latest offering for applications with power requirements of 500 Watts or less. The 2000LP utilizes Branson's proprietary circuitry with closed loop amplitude control to provide maximum process control.

The 2000LP units can be used with their appropriate hand-held devices or can be connected directly to a converter/booster/horn stack for use in automation. Two control levels are available: the LPt model provides continuous and time welding modes; the LPe model provides continuous, time, and energy welding modes. Both models are available with an optional factory-installed ground detect. Three frequencies are available: 20 kHz at 150 and 500 Watts; 30 kHz at 500 Watts, and 40 kHz at 150 and 500 Watts.

Key Features

- **Digital parameter entry** - or precise, easy setup.
- **1 ms sampling rate** - of all data provides superior performance.
- **Digital amplitude control** - allows fine tuning for critical applications (ranges from 10% to 100% in 1% increments).
- **Optional ground detect** - can be used to detect horn-to-anvil contact or can be utilized as an 'ultrasonic cut-off' signal/safety override in all available welding modes. (This option must be factory installed.)
- **Audible "end of cycle" tone** - to alert the operator that the cycle has finished when using a hand-held device.
- **Self-diagnostics and monitoring** - provide visual, audible, and logic output alarms.
- **Selectable auto reset conditions** - for all alarms.

Power Supply

- **Line / Load Regulation** - Branson's proprietary closed-loop amplitude control corrects for variations due to power line fluctuations and varying load conditions. Output amplitude is maintained with a variation of only $\pm 2\%$ with line voltage fluctuations of $\pm 10\%$, regardless of load. It ensures constant power in welding and provides greater weld consistency and reliability.
- **Autotune plus Memory (AT/M)** - Provides fully-automatic tuning in a range of ± 500 Hz centered around 19.950 kHz for 20 kHz horns, ± 750 at 30 kHz for 30 kHz horns, and ± 1000 around 39.900 kHz for 40 kHz horns, and stores horn frequency at the end of each weld.
- **Auto Seek** - tracks the operating frequency when the system is idle. It automatically measures horn frequency by running the horn at a low level amplitude (5%) to find and lock on to the horn operating frequency and store it in memory.
- **System Protection Monitor (SPM)** - Five levels of power supply protection are provided: 1) phasing, 2) over voltage, 3) over current, 4) over temperature, and 5) power. The benefits of this feature are to avoid equipment failures and to provide greater weld accuracy and repeatability.
- **Sequence of operation** - is displayed in the digital LED window during the welding cycle.
- **Visual and audible alarms, and external outputs** - identify overload, machine faults, and setup errors.
- **LED readouts display parameter settings** - during setup and operation for easy reference and monitoring. LEDs are large and easy to read in most light conditions.
- **Nonvolatile storage of cycle parameters** - provides storage of last-used cycle parameters even if the system is shut off or a power interruption occurs.
- **High Cycle Rate** - The power supply is capable of in excess of 200 welds per minute. Actual cycle rate is dependent upon the application and controls.
- **Real Power Measurement** - Power measurement includes both RF voltage and current, and is corrected for any amplitude setting. Seven-segment LEDs display the peak power achieved during the weld cycle.
- **Peak power reading** - from the last welding cycle is available on the digital LED display by depressing the "reset" switch. Similarly, power in the tuning mode is digitally displayed when the "test" switch is depressed.
- **User I/O interface** - provided for direct hook-up with programmable controllers. Overload and Weld On outputs and external reset input are available for customer access, through 24V DC logic interfaces. External reset input available in +24V. (Requires J911 start cable.)

Hand-Held Welding Tools

The 2000 Series hand-held ultrasonic welders are compact, lightweight tools used to spot weld or stake large, complex parts and those with hard-to-reach joint areas.

With pistol grip (PT) models, the trigger switch is located on the grip; barrel grip (HT) models have the trigger switch located on the side of the barrel. All units may be operated in an untimed mode with the 2000LPt or 2000LPe set for continuous operation, utilizing the trigger switch; or in a timed or energy mode using the 2000LPe power supply controller. With time or energy modes, the trigger switch initiates the cycle, which is then controlled by the power supply.

On the HT-215 unit, the operator grips a sliding, spring-loaded sleeve, and by applying pressure against the parts to be welded, automatically triggers the ultrasonic welding cycle. Welding duration is controlled by the power supply either in time or energy welding modes. An adjustment screw is used to vary the force required before ultrasonic triggering occurs.

Basic Configurations

Automation Components	Power Supply	Power Output	Converter	RF Cables	Start Cables
	20 kHz				
	20:0.15.2CH	150 Watts	2CH1	J934C (8')	J913
			2CH2	J934C (8')	J911 (PLA* req'd)
			2CH3	J934C (8')	
			TW-1	J935 (8')	J913
			TW-2	J935 (8')	J911 (PLA* req'd)
			TW-3	J935 (8')	
				J931	J913
	20:0.50.902	500 Watts	902R	J931C	J11 (PLA* req'd)
	30 kHz				
			CR30	J934C	
			CH30	J934C	J913
			CS30	J934C	J911 (PLA* req'd)
	30:0.50.CR	500 Watts	CP30	J934C	
	40 kHz				
	40:0.15.4C	150 Watts	4C	8' built-in	J913
			KTR	J936 (8')	J911 (PLA* req'd)
			4TR	J934	J913
	40:0.15.4T	150 Watts	4TH	J934C	J911 (PLA* req'd)
			4TP	J934C	
	40:0.50.4T	500 Watts	4TR	J934	J913
			4TH	J934C	J911 (PLA* req'd)
			4TP	J934C	
Hand Held Systems	Power Supply	Power Output	Hand Held	Converter Required	Replaces
	20 kHz				
	20:0.15.2CH	150 Watts	HT-215	TW-1	HG-152
			HK-215	TW-2	
				TW-3	
	20:0.50.902	500 Watts	PT-250	402	GK-5
	30 kHz				
	30:0.50.CR	500 Watts	PT-350	Built-in	—
	40 kHz				
	40:0.15.4C	150 Watts	PT-415	KTJ	KG-1
			HT-415	KTJ	KG-1
	40:0.15.4T	150 Watts	PT-480	Built-in	GK-470
			HT-480	Built-in	HG-470
	40:0.50.4T	500 Watts	PT-480	Built-in	GK-470
			HT-480	Built-in	HG-470

Ordering Information

20 kHz, 150 Watt System Components

Power Supplies	Branson EDP No.
LPt, 100-120 V	100-132-931
LPt, 200-240 V	100-132-932
LPt, 200-240 V, CE	100-132-933
LPe, 100-120 V	100-132-928
LPe, 200-240 V	100-132-929
LPe, 200-240 V, CE	100-132-930

Converters

2CH1 (33μ), SHV, CE	101-135-127
2CH2 (75μ), SHV, CE	101-135-128
2CH3 (125μ), SHV, CE	101-135-129
TW-1 (75μ), BNC	101-135-015
TW-2 (125μ), BNC	101-135-016
TW-2 pinned (125μ),	BNC 159-023-313
TW-3 (33μ), BNC	101-135-031

Hand-held Welders (require TW-1, -2, or-3 converter)

HT-215, barrel grip	101-136-010
HK-215, pistol grip (trim knife)	159-136-009

20 kHz, 500 Watt System Components

Power Supplies	Branson EDP No.
LPt, 100-120 V	149-132-1026
LPt, 200-240 V	149-132-1027
LPt, 200-240 V, CE	149-132-1028
LPe, 100-120 V	149-132-1023
LPe, 200-240 V	149-132-1024
LPe, 200-240 V, CE	149-132-1025

Converters

402 (used in PT-250 Hand-held)	101-135-014
902R (used in automation)	101-135-048

Hand-held Welder (requires 402 converter)

PT-250, pistol grip, CE	101-136-014
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30 kHz, 500 Watt System Components

Power Supplies	Branson EDP No.
LPt, 100-120 V	100-132-967
LPt, 200-240 V	100-132-968
LPt, 200-240 V, CE	100-132-969
LPe, 100-120 V	100-132-964
LPe, 200-240 V	100-132-965
LPe, 200-240 V, CE	100-132-966

Converters

4C, 8' RF cable built-in, CE	101-135-126
KTR, MS connector	101-135-045
KTJ, acorn contact, CE	101-135-046

Hand-held Welders (require KTJ converter)

HT-415, barrel grip, CE	101-136-011
PT-415, pistol grip, CE	101-136-015

40 kHz, 150/500 Watt System Components

Power Supplies	Branson EDP No.
LPt, 150 W, 100-120 V	149-132-943
LPt, 150 W, 200-240 V	149-132-944
LPt, 150 W, 200-240 V, CE	149-132-945
LPe, 150 W, 100-120 V	149-132-940
LPe, 150 W, 200-240 V	149-132-941
LPe, 150 W, 200-240 V, CE	149-132-942
LPt, 500 W, 100-120 V	149-132-955
LPt, 500 W, 200-240 V	149-132-956
LPt, 500 W, 200-240 V, CE	149-132-957
LPe, 500 W, 100-120 V	149-132-952
LPe, 500 W, 200-240 V	149-132-953
LPe, 500 W, 200-240 V, CE	149-132-954

Converters

4TR, MS connector	101-135-042
4TH, SHV connector, CE	101-135-067
4TP, SHV connector, CE	101-135-068

Hand-held Welders (converter built in)

PT-480, pistol grip, CE	159-135-133
HT-480, barrel grip, CE	159-135-134



HT-215



HK-215



PT-250



PT-350



PT-415



HT-415



PT-480



HT-480

Ordering Information *(continued)*

Cables

RF, J934 (4TR converter)	8'	101-240-034
	15'	101-240-035
RF, J934C (for all SHV), CE	8'	101-240-179
	15'	101-240-181
RF, J937 (all TW converters)	8'	100-246-1218
RF, J938 (KTR converter)	8'	100-246-1219
Start, J911, 9-pin <i>(requires product liability agreement)</i>		
	8'	101-240-020
	15'	101-240-015
	25'	101-240-010
Start, J913, 2-pin	25'	101-240-072

Accessories

Ground Detect <i>(must be factory installed)</i>	225-029-866
Fan filter kit <i>(for use in dusty environments)</i>	101-063-614
UTK and HG-152 adaptor cable <i>(allows use of UTK or HG-152)</i>	125-240-292
15' RF/start extension cable <i>(do not use with PT-415 or HT-415)</i>	125-240-281

Boosters

Booster/Gain	20 kHz	30 kHz	40 kHz
Purple (Al) 1:0.6	101-149-055	—	101-149-087
Green (Al) 1:1	101-149-051	—	101-149-079
Gold (Al) 1:1.5	101-149-052	—	101-149-080
Silver (Al) 1:2	101-149-053	—	101-149-081
Black (Al) 1:2.5	—	—	101-149-082
Purple (Ti) 1:0.6	101-149-060	—	—
Green (Ti) 1:1	101-149-056	101-149-106	101-149-085
Gold (Ti) 1:1.5	101-149-057	101-149-105	101-149-086
Silver (Ti) 1:2	101-149-058	101-149-104	101-149-083
Black (Ti) 1:2.5	101-149-059	101-149-103	101-149-084

Note: Boosters are not used with TW and 2CH converters.

Specifications

2000LP Power Supplies

	20:0.15.2CH	20:0.50.902	40:0.15.4C	40:0.15.4T	40:0.50.4T	30:0.5.CR
Electrical Specifications						
Frequency:	20 kHz	20 kHz	40 kHz	40 kHz	40 kHz	30 kHz
Output power:	150 watts	500 watts	150 watts	150 watts	500 watts	500 watts
Line voltage: FCC, CSA Certified	100-120 V AC, 50/60 Hz, 1Ø, 2 amps	100-120 V AC, 50/60 Hz, 1Ø, 7 amps	100-120 V AC, 50/60 Hz, 1Ø, 2 amps	100-120 V AC, 50/60 Hz, 1Ø, 2 amps.	100-120 V AC, 50/60 Hz, 1Ø, 7 amps	100-120 V AC, 50/60 Hz, 1Ø, 7 amps
Line voltage FCC, CSA Certified	200-240 V AC, 50/60 Hz, 1Ø, 1 amp	200-240 V AC, 50/60 Hz, 1Ø, 6 amps	200-240 V AC, 50/60 Hz, 1Ø, 1 amp	200-240 V AC, 50/60 Hz, 1Ø, 1 amp	200-240V AC, 50/60 Hz, 1Ø, 6 amps	200-240 V AC, 50/60 Hz, 1Ø, 6 amps
Line voltage: CE Certified	200-240 V AC, 50/60 Hz, 1Ø, 1 amp	200-240 V AC, 50/60 Hz, 1Ø, 6 amps	200-240 V AC, 50/60 Hz, 1Ø, 1 amp	200-240 V AC, 50/60 Hz, 1Ø, 1 amp	200-240V AC, 50/60 Hz, 1Ø, 6 amps	200-240 V AC, 50/60 Hz, 1Ø, 6 amps
Receptacle required:	100-120 V AC models: NEMA 5-15R; 200-240V AC models: *NEMA 6-15R or equivalent; 200-240V AC, CE Certified: *CEE 7/7					
Mechanical Specifications						
Height:	9" (229 mm)					
Width:	7.75" (197 mm)					
Depth:	13.3" (338 mm) (depth: plus 3" [76 mm] cable clearance)					
Weight:	15.5 lbs. (7 kg)					

*User must supply power cord ends for all 200-240 V systems.

Regional Technical Centers

Headquarters:	Toll free: 888-BUC-JOIN (888-282-5646) Fax: 203-796-9838	
Boston:	978-262-9040	Fax: 978-262-1494
Chicago:	847-229-0800	Fax: 847-229-0861
Atlanta:	770-962-2111	Fax: 770-962-3720
Los Angeles:	909-305-2080	Fax: 909-305-2060
Dallas:	972-484-9228	Fax: 972-484-9976
Detroit (automotive):	248-299-0400	Fax: 248-299-9343
Rochester, NY:	585-624-8000	Fax: 585-624-1262
Toronto, Canada:	905-201-4633	Fax: 905-201-4637
Monterrey, MX:	52-811-332-0261	Fax: 52-555-670-7885



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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.

All Branson 2000 LPt/LPe Series ultrasonic power supplies are CSA approved and FCC compliant. CE compliant models are indicated.

Hand-held systems include an appropriate tool kit.

Warranty: The Branson 2000LP Power Supplies carry a three-year warranty on materials or workmanship. Branson hand-held welders carry a one-year warranty on materials and 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.