

# HF2, HF2S

## High Frequency Inverter Welders



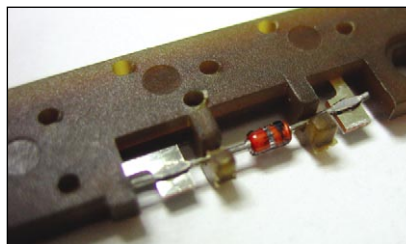
HF2 is a 2 kHz, three-phase, high frequency **inverter welder** designed for precision joining of small parts. High speed (250  $\mu$ s) digital feedback automatically controls weld current, voltage, or power, ensuring weld consistent, repeatable welding, and has proven to extend electrode life in many applications by a factor of five or more. A selectable weld energy limiting feature also contributes to repeatable welds and high nugget quality.

The optional built-in WELD SENTRY<sup>®</sup> weld monitor is capable of sophisticated weld data gathering and SPC computations and reporting.

### KEY FEATURES

- Constant current, voltage or power control modes
- High weld repetition rates
- Spot, braze and seam welding applications
- Graphical and alpha-numeric user interface
- I/O communication ports for factory installation
- Small transformers facilitate easy integration
- Optional built-in S with SPC

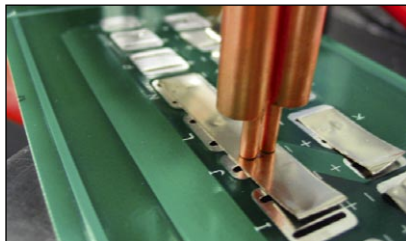
### TYPICAL APPLICATIONS



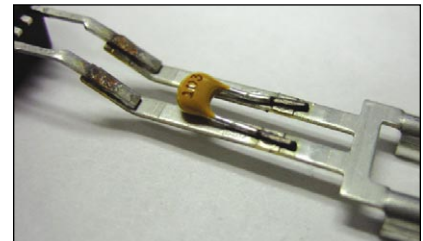
*Resistor to terminal*



*Seam welding*



*Brazing*



*Capacitor to lead frame*

## TECHNICAL SPECIFICATIONS

<b>CONTROL SYSTEM</b>	2 kHz pulse width modulated (PWM) inverter welding control with constant current, voltage or power feedback operating modes. Feedback response every 250 microseconds.
<b>Line voltage</b>	Three phase, 208, 230, 380 or 460 VAC ±13%, 50/60 Hz
<b>Input circuit rating</b>	HF2/208-50 A; HF2/230-50 A; HF2/380-30 A; HF2/460-30 A
<b>Weld current</b>	See table below
<b>Weld power</b>	0.10 – 9.99 kW
<b>Weld voltage</b>	0.1 – 5.0 V
<b>Weld period</b>	2000 milliseconds (maximum)
<b>Graphical weld display</b>	Graphical display of programmed and actual weld current, voltage and power
<b>Welding functions</b>	10 functions – basic, braze, dual pulse, pre/weld/post heat, pulsation, quench/te per, roll-spot, weld/repeat, up/down slope and seam
<b>Weld schedules</b>	The user can save (write) 128 different weld schedules. Weld schedules 1 through 127 can be protected. Schedule 0 is designed to be used as a scratchpad for schedule development.
<b>INPUT SIGNALS</b>	
<b>Remote control external input connector</b>	Provides control for the following remote control signals: emergency stop, weld inhibit and remote weld schedule selection. Use dry relay contacts or optocouplers to control remote external input signals.
<b>Firing switch</b>	1-level footswitch, 2-level footswitch, 2-wire firing switch, 3-wire firing switch and opto-firing switch. Use dry relay contact or opto-couplers to control input signals.
<b>OUTPUT SIGNALS</b>	
<b>Solid state relays</b>	2 user-programmable solid state relays: AC-24/115 VAC @ 15 VA; DC-24 VDC @ 15 VA.
<b>Valve driver outputs</b>	2 solid state relay outputs for controlling air actuated weld heads. Valve #1 can control a single 24/115 VAC air head. Valve #2 can control a single 24 VAC air head.

HF2 TRANSFORMER MODEL	IT-1040HF2-3	IT-4040HF2-3	IT-1140HF2-3	IT-4140HF2-3	IT-X11B/230	IT-X11B/380	IT-X11B/460
<b>Cooling</b>	Water	Water	Water	Water	Air	Air	Air
<b>Nominal AC input voltage</b>	230/460	380	460	380	230	380	460
<b>Rated kVA (50%) duty cycles</b>	40	40	140	140	12	16	20
<b>Primary number of taps</b>	2	2	2	2	4	4	4
<b>Turn ratio</b>	<b>230 VAC</b> - 38:1 <b>460 VAC</b> - 76:1	58:1 116:1	50:1 72:1	55:1	30:1 40:1 45:1 55:1	40:1 50:1 55:1 65:1	40:1 50:1 55:1 65:1
<b>Max unloaded secondary voltage [V]</b>	<b>230 VAC</b> - 8.5 <b>460 VAC</b> – 8.5	9.3 4.6	13.0 9.03	9.77	10.4 7.7 6.7 5.5	13.0 10.3 9.4 7.8	15.8 12.6 11.4 9.6
<b>Maximum output current (A)</b>	<b>230 VAC</b> – 7600 <b>460 VAC</b> - 8800	9500 4700	9900 9200	9900	4,000	4,000	4,000
<b>Duty cycle (%) at max. current</b>	10*	10*	10*	10*	10**	10**	10**

## WEIGHT & DIMENSIONS

Model	HF2 Inverter	IT-1040HF2-3, IT-4040HF2-3	IT-4040HF2-3, IT-4140HF2-3	IT-X11B/230, IT-X11B/380, IT-X11B/460
<b>Dimensions (L x W x H)</b>	15.0 in x 10.5 in x 8.5 in (381 mm x 267 mm x 216 mm)	15.5 in x 7.0 in x 6.8 in (394 mm x 178 mm x 172 mm)	19.6 in x 8.5 in x 5.0 in (497 mm x 216 mm x 127 mm)	18.8 in x 7.3 in x 7.3 in (476 mm x 184 mm x 184 mm)
<b>Weight</b>	42 lb (19 kg)	51 lb (23 kg)	88 lb (40 kg)	58 lb (26 kg)



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