Features

The iQ series generators are all built around our patent pending digital design. Compact in size, they provide the highest power density in the smallest package, while incorporating our exclusive flow through cooling. These generators are designed to handle the toughest applications and environments, capable of operating either in continuous duty or high-speed automation. Our industry leading 0.5 millisecond multi-core processing speed provides the highest level of accuracy and repeatability. The unique modular design allows for custom configurations and ultimate flexibility. This series is compatible with all your current Dukane hand probes, automation probes and converters.

Digital Features

- 100% digital control of all power supply functions and parameters allows for unique configurations and future upgrades or requirements. Includes digital frequency synthesis.
- Industry leading data acquisition rate speed of .5 ms due to advanced multi-core architecture. Increased weld accuracy and repeatability.
- Three step system safe power up sequence 1) AC power inrush protection, 2) Supervisory System Monitor 3) Plug and Play configuration ID.
- Digi-Trac tuning automatically tracks the resonant frequency digitally. Adjust the output frequency to match the acoustic stack (sonotrode, booster, and transducer) this is done for every weld cycle and eliminates the need to manually tune the generator.
- Ultrasonic overload protection with status indicator for ease of troubleshooting. The overload power limit is based on true RMS power output level.
- Line Voltage Regulation compensates for line fluctuations assuring consistent amplitude.
- Temperature Drift Compensation allows for seamless acoustic stack operation, and automatically compensates for acoustic stack temperature changes.
- Patented Pulse-Width Modulation design delivers power more efficiently with substantially less stress on the electrical and acoustic components for superior performance, reliability and extended life.
- Linear Ramp Soft-start algorithm allows the acoustic stack to be brought to operating amplitude smoothly, minimizing start-up surges and abnormal stress to the stack and power supply.
- System Supervisory Monitors checks all internal power supply functions for proper operation.
- Load Regulator provides constant ultrasound amplitude automatically regardless of the power draw. The ultrasonic output amplitude level is held to within 1 %, to provide weld process consistency and reduced weld cycle times.
**Mechanical Features**

- **Flow Through Cooling** tunnel with a matched high performance heat sink and thermostatically controlled fan reduces thermal gradients, minimizes dirt infiltration and increases component life.
- **Highest power density** per unit of volume. Most power in the smallest package at highest duty cycle. Low and high profile configurations available.
- **21-segment multi-color power bar graph.** Peak power detect feature; LED remains on after weld cycle. Multifunction overload indicators. Ideal for quick diagnostics and troubleshooting.
- **4 line LCD display with intuitive menu structure for quick easy programming.**
- **RS232 serial configuration port** is used for field software upgrades, trouble shooting and advance hardware setup with optional PC based IQ configurator.
- **Advanced I/O** is standard with 25-pin output, and 5-pin input, user configurable from the utility menu. Visit: www.dukcorp.com/us go to downloads/application notes for your plastic assembly needs.
- Unique Patent pending modular hardware design incorporates motherboard/interconnect of internal components. Reduces internal cabling while increasing reliability and performance.
- **Rear panel expansion** slots are available to allow for custom configurations for OEM and cost effective custom solutions.
- **Process statistics window** displays part count and % of good, bad and suspect welds.
- **System status panel** displays any of six self-diagnostic messages, including Fault, Input test, Overload, Overtemperature, On-line, or Off line.
- **Integrated frequency analyzer** accurately displays operating frequency of the acoustic stack. This is perfect for acoustic stack diagnostics.
- **Energy, and Peak Power.**
- **Bad and suspect process limits** include Time, Time and Energy, and Peak Power, with discrete outputs. These programmable limits provide the means to adapt to a wide variety of welding applications.
- **Amplitude adjustment** in 1% increments from 100% to 20%. through front panel or remote (4-20) mA.
- **16 setups with individual user ID.** (including Amplitude %)
- **Programmable sofstart and sofstop amplitude** can be used to reduce stress on acoustic stacks, or for high-speed application to achieve full amplitude in as short as .010 seconds. Factory configurable settings also available.
- **User-accessible programmable advanced hardware settings** allows changes to Phase Shift, Free Run Frequency, Frequency Lock/Hold and Frequency Limits – providing advance settings for difficult acoustic stacks.
- **Bad and suspect process limits** include Time, Time and Energy, and Peak Power, with discrete outputs. These programmable limits provide the means to adapt to a wide variety of welding applications.
- **Selectabe lock and hold feature system ignores digi-trac automatic tuning feature and locks to startup stack frequency – helps in difficult applications where the stack couples with a product.**
- **Programmable frequency bandwidth, three selectable factory settings or user programmable windows for unique acoustic stacks and applications.**
- **Alterburst control** includes delay and duration time settings.

**Menu Controls**

- Primary and secondary weld control parameters **Time**, **Energy**, and **Peak Power.**

**Options**

- The user can select one of the following: Multi-probe Control (MPC), Automation Thruster Control, or Remote Control. Additional module for converting isolated I/O from NPN (standard) to PNP is available.
- High or low profile package
- **19” rack mount brackets or vertical rear panel mount configurations are available for equipment cabinet installations.**
- I/O configurations compatible with current DPC or Ultra series installations.

**Mechanical Features. . continued from previous page.**

- **Standard 19” (48cm) Rack mountable for easy system integration at minimal cost.**
- **Compatibility with all Dukane standard transducers, helps reduce inventory requirements and provides interchangeability with your existing DPC or Ultra series components.**
Mechanical Features

- Flow Through Cooling tunnel with a matched high performance heat sink and thermostatically controlled fan reduces thermal gradients, minimizes dirt infiltration and increases component life.

- Highest power density per unit of volume. Most power in the smallest package at highest duty cycle. Low and high profile configurations available.

- 21-segment multi-color power bar graph. Peak power detect feature, LED remains on after weld cycle. Multifunction overload indicators. Ideal for quick diagnostics and troubleshooting.

- 4 line LCD display with intuitive menu structure for quick easy programming.

- RS232 serial configuration port is used for field software upgrades, trouble shooting and advance hardware setup with optional PC based iQ configurator.

- Advanced I/O is standard with 25-pin output, and 5-pin input, user configurable from the utility menu. Visit: www.dukcorp.com/us go to downloads/application notes for your plastic assembly needs.

- Unique Patent pending modular hardware design incorporates motherboard/interconnect of internal components. Reduces internal cabling while increasing reliability and performance.

- Rear panel expansion slots are available to allow for custom configurations for OEM and cost effective custom solutions.

- Process statistics window displays part count and % of good, bad and suspect welds.

- System status panel displays any of six self-diagnostic messages, including Fault, Input test, Overload, Overtemperature, On-line, or Off line.

- Integrated frequency analyzer accurately displays operating frequency of the acoustic stack. This is perfect for acoustic stack diagnostics.

- Hot Key System Info Key

On-Line/Off Line

User friendly Navigation

Status Panel

21 segment Power Bar Graph

Ultrasonic Test Key

Intuitive Menu Structure

4 line LCD Display

100% digitally controlled

Menu Controls

- Primary and secondary weld control parameters Time, Energy, and Peak Power.

- Bad and suspect process limits include Time, Time and Energy, and Peak Power, with discrete outputs. These programmable limits provide the means to adapt to a wide variety of welding applications.

- Amplitude adjustment in 1% increments from 100% to 20%. Through front panel or remote (4-20) mA.

- 16 setups with individual user ID. (including Amplitude %)

- Programmable softstart and softstop amplitude can be used to reduce stress on acoustic stacks, or for high-speed application to achieve full amplitude in as short as .010 seconds. Factory configurable settings also available.

- User-accessible programmable advanced hardware settings allows changes to Phase Shift, Free Run Frequency, Frequency Lock/Hold and Frequency Limits – providing advance settings for difficult acoustic stacks.

Options

- The user can select one of the following: Multi-probe Control (MPC), Automation Thruster Control, or Remote Control. Additional module for converting isolated I/O from NPN (standard) to PNP is available.

- High or low profile package

- 19” rack mount brackets or vertical rear panel mount configurations are available for equipment cabinet installations.

- I/O configurations compatible with current DPC or Ultra series installations.

Mechanical Features. . . continued from previous page.

- Standard 19” (48cm) Rack mountable for easy system integration at minimal cost.

- Compatibility with all Dukane standard transducers, helps reduce inventory requirements and provides interchangeability with your existing DPC or Ultra series components.

- Selectable frequency lock and hold feature system ignores di-gi-trac automatic tuning feature and locks to startup stack frequency – helps in difficult applications where the stack couples with a product.

- Programmable frequency bandwidth, three selectable factory settings or user programmable windows for unique acoustic stacks and applications.

- Afterburst control includes delay and duration time settings.
Approximate weight 25 lbs. Shipping weight 30 lbs. Wattage above 1200 W requires 200-240 VAC, 50/60 Hz line.

Model 3600

Model 4800

ULTRASONIC GENERATOR/POWER SUPPLY

Features

The iQ series generators are all built around our patent pending digital design. Compact in size, they provide the highest power density in the smallest package, while incorporating our exclusive flow through cooling. These generators are designed to handle the toughest applications and environments, capable of operating either in continuous duty or high speed automation. Our industry leading 0.5 millisecond multi-core processing speed provides the highest level of accuracy and repeatability. The unique modular design allows for custom configurations and ultimate flexibility. This series is compatible with all your current Dukane hand probes, automation probes and converters.

Digital Features

- **100% digital control** of all power supply functions and parameters allows for unique configurations and future upgrades or requirements. Includes digital frequency synthesis.
- **Industry leading data acquisition rate speed of 0.5 ms** due to advanced multi-core architecture. Increased weld accuracy and repeatability.
- **Three step system safe power up sequence** 1) AC power surge protection, 2) Supervisory System Monitor 3) Plug and Play configuration ID.
- **Digi-Trac** tuning automatically tracks the resonant frequency digitally. Adjust the output frequency to match the acoustic stack (sonotrode, booster, and transducer) this is done for every weld cycle and eliminates the need to manually tune the generator.
- **Ultrasonic overload protection** with status indicator for ease of troubleshooting. The overload power limit is based on true RMS power output level.
- **Line Voltage Regulation** compensates for line fluctuations assuring consistent amplitude.
- **Temperature Drift Compensation** allows for seamless acoustic stack operation, and automatically compensates for acoustic stack temperature changes.
- **Patented Pulse-Width Modulation** design delivers power more efficiently with substantially less stress on the electrical and acoustic components for superior performance, reliability and extended life.
- **Linear Ramp Soft-start** algorithm allows the acoustic stack to be brought to operating amplitude smoothly, minimizing start-up surges and abnormal stress to the stack and power supply.
- **System Supervisory Monitors** checks all internal power supply functions for proper operation.
- **Load Regulation** provides constant ultrasound amplitude automatically regardless of the power draw. The ultrasonic output amplitude level is held to within 1%, to provide weld process consistency and reduced weld cycle times.

<table>
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<th>Power / Frequency / Profile</th>
<th>600 W</th>
<th>900 W</th>
<th>1200 W</th>
<th>1800 W</th>
<th>2400 W</th>
<th>3600 W</th>
<th>4800 W</th>
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<td>15 amps</td>
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<td>30 amps</td>
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</table>

Note: All specifications are subject to change without notice. Please consult Dukane Ultrasonics for any updated information.

www.dukcorp.com/us • e-mail: ussales@dukcorp.com

Dukane Corporation • Ultrasonics Division • 2900 Dukane Drive • St. Charles, Illinois 60174 USA • TEL (630) 797-4900 • FAX (630) 797-4949

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