WeldComputer
The Technology Leader in Resistance Welding

MADE IN THE U.S.A.

WeldComputer Controls for **High Precision** Resistance Welding

In high speed seam welding, aluminum welding, thin material welding and projection welding applications that are best optimized with short duration welds, WeldComputer Controls improve weld consistency and increase production throughput beyond what can be achieved with other inverter based welding systems.

Fig. 1 shows a current trace of a three-millisecond duration weld produced with a schedule that was set to operate at a 2kHz switching frequency. This is the same switching frequency that occurs with a conventional 1kHz mid-frequency DC welder. Even though a current pulsation is produced every 500 microseconds, substantial current ripple can occur in applications using a small throat weld machine with low impedance secondary.

This type of ripple can be reduced with a WeldComputer Control by setting the schedule to operate at a higher frequency. Fig. 2 shows a current trace of the same weld operating at a 4kHz switching frequency, and Fig. 3 shows the response when it is set to 8kHz. Compared to conventional 1kHz mid-frequency DC, the 8kHz schedule yields a four-fold control resolution increase and reduces the current ripple by more than 80%. Finally, setting the schedule to operate at a 16kHz switching frequency produces ripple so low that it is nearly indistinguishable (Fig. 4).

All of these welds were produced with a WeldComputer Control connected to a standard 60Hz AC welding transformer. The current traces were recorded with a WeldView Monitor set to collect 160 data points in 30 microsecond time increments (4800 microsecond acquisition window).

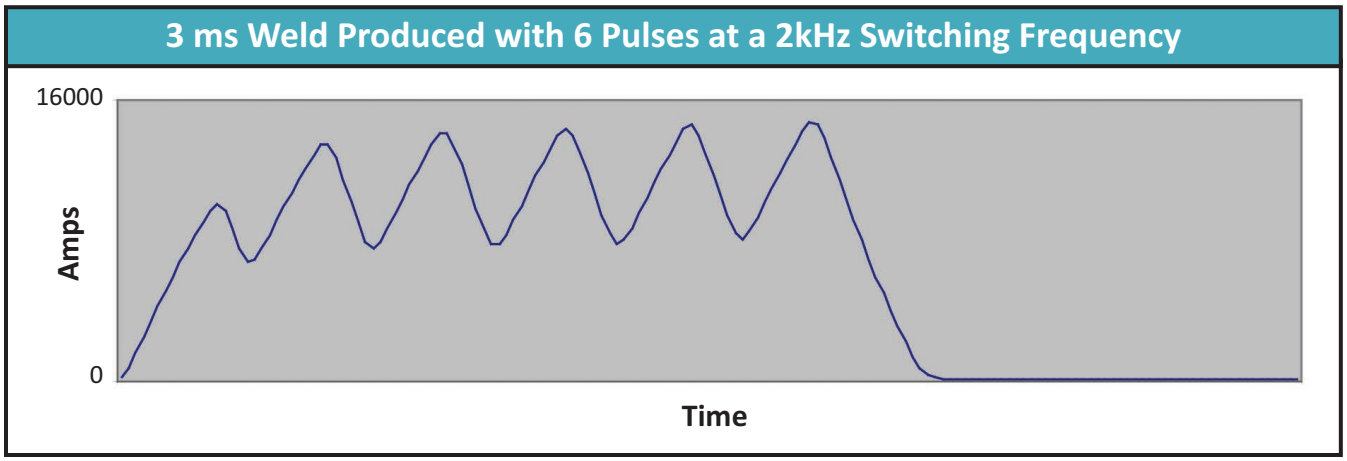

Figure 1. Schedule operating at the same switching frequency as a conventional 1Khz mid-frequency DC welding system produces significant current ripple.

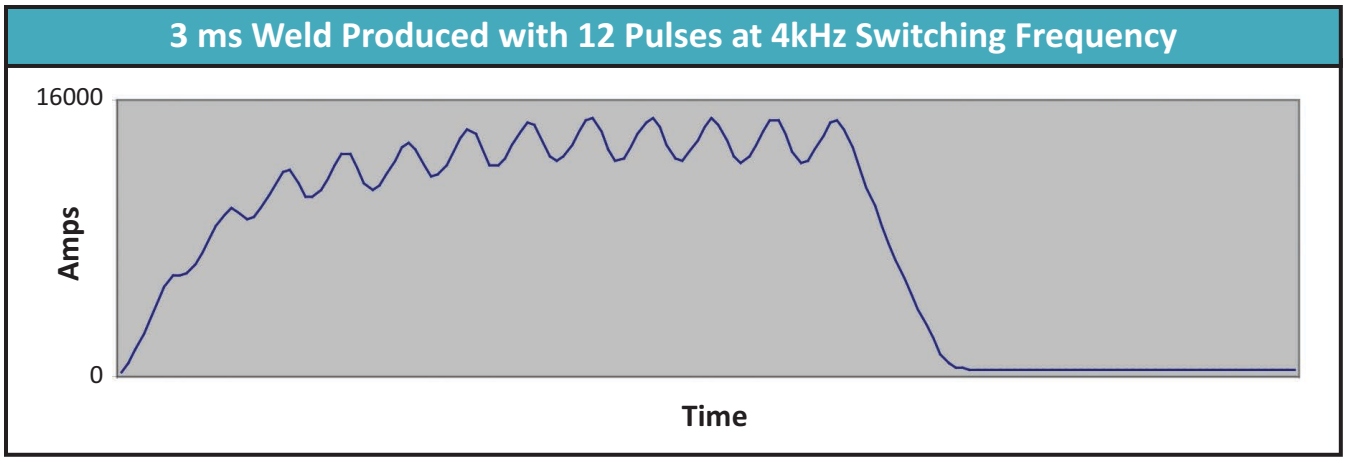

Figure 2. WeldComputer Control schedule operating at double the switching frequency of a conventional 1Khz mid-frequency DC welding system, results in less current ripple than can be achieved with a conventional mid-frequency DC transformer connected to the same welding apparatus.

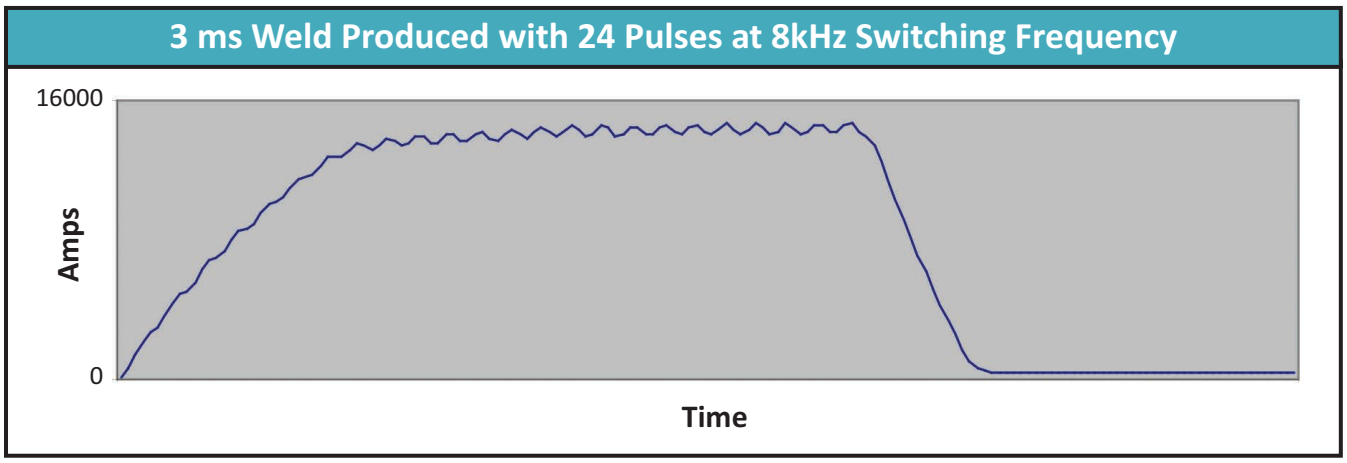

Figure 3. WeldComputer Control schedule operating at quadruple the switching frequency of a conventional 1Khz mid-frequency DC welding system yields a four-fold control resolution increase and more than 80% reduction in current ripple.

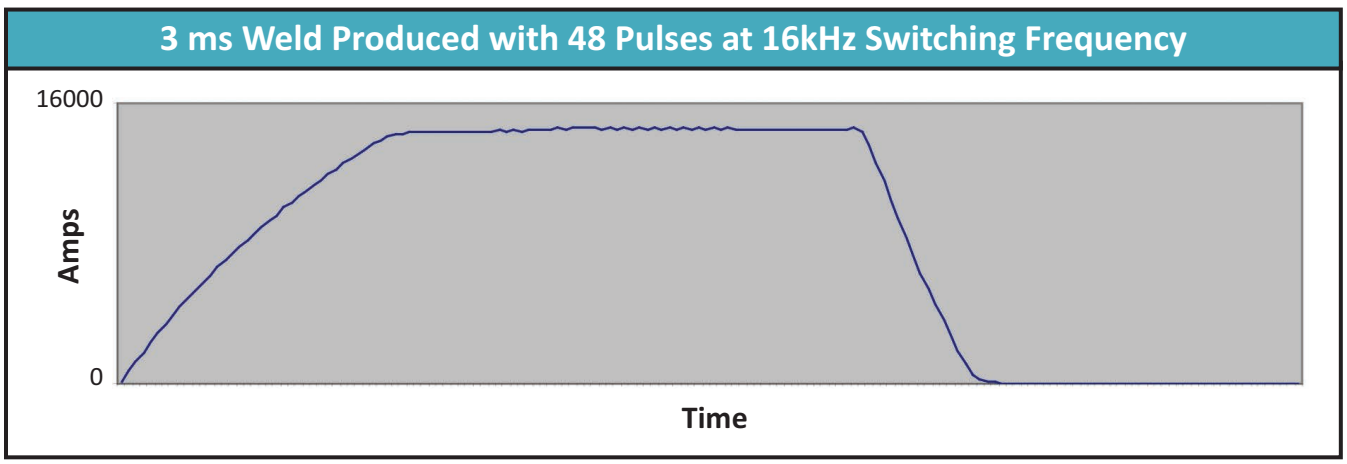

Figure 4. WeldComputer Control schedule operating at eight times the switching frequency of a conventional 1Khz mid-frequency DC welding system produces current ripple so low that it is nearly indistinguishable.