

## **IRIG-B** Specifications

The Arbiter Systems<sup>®</sup>, Inc. GPS satellite controlled clocks provide the following IRIG-B formats: B000, B003, B120, B123, and modified Manchester. The B000, B003, and modified Manchester formats are 5 Vdc TTL level shift (unmodulated). The B120 and B123 formats are modulated on a 1 kHz sine wave with an output level of 10 Vpp for the Model 1088B and 4.5 Vpp for the Model 1084A/B/C, Model 1093A/B/C, and Model 1092A/B/C. The B120 and B123 formats are available in all clocks but these formats are optional for the Models 1093A/B/C and 1092A/B/C.

B000 contains 30 bits of binary coded decimal (BCD) time-of-year information in days, hours, minutes, and seconds; 27 bits for control functions; and 17 bits of straight binary seconds-of-day (SBS). Eight of the 27 bits are used to provide a two digit year. B000 is available on the unmodulated IRIG-B connector when IEEE 1344 is activated.

B003 contains 30 bits of binary coded decimal (BCD) time-of-year information in days, hours, minutes, and

seconds; and 17 bits of straight binary seconds-of-day (SBS). B003 is the standard unmodulated IRIG-B output.

B120 contains the same bit information as B000 but is amplitude modulated on a 1 kHz carrier. B120 is a sine wave. B120 is available on the modulated IRIG-B connector when IEEE 1344 is activated.

B123 contains the same bit information as B003 but is amplitude modulated on a 1 kHz carrier. B123 is a sine wave. B123 is the standard modulated IRIG-B output.

Modified Manchester is a digital signal like B000 but mimics the coding method of B120 with binary 1's and 0's in place of high and low amplitude cycles. The modified Manchester-coded IRIG-B is recommended as an alternative to the modulated IRIG-B with 1 PPS synchronization. The data is coded in the same format as IRIG-B for easy integration with existing systems but the modulation is better adapted for both fiber and metallic digital systems.

The complete IRIG-B specification is available at http://www.arbiter.com/ftp/datasheets/irig-b\_200-04.pdf



IRIG-B coding comparisons: level shift, 1 kHz amplitude modulated, and modified Manchester