POLE ZERO CORPORATION

Frequency Tuning Address

Introduction

Pole/Zero utilizes an eight-bit scheme for tune words to digitally control tuning of the center frequency across its standard product line of Bandpass filters. This eight-bit scheme is shown in the following table.

Tune Word	Result
00000000 thru 11111010	Lowest tuned frequency (251 total tune codes) Highest tuned frequency
11111011 thru 11111110	RF In/Out Isolation Filter Blanked
11111111	Power saver mode; all PIN diodes turned off

There are 250 equally spaced tuning increments across each standard filter band, resulting in 251 tune words from 00000000 to 11111010. The last 5 tune words are reserved for housekeeping functions:

Calculating a Tune Address:

The binary tuning word is determined by the following relationship:

$$tuneword = \left(\frac{F_{desired} - F_{low}}{F_{high} - F_{low}} \right) \times 250$$

Example: If you wish to tune to 322 MHz using a 225 to 400 MHz filter, the tune word is:

$$\left(\frac{322 - 225}{400 - 225} \right) \times 250 = 138.57 \quad (10001011 \text{ binary})$$

NOTE: Round off to the nearest decimal integer!