Kantronics D4-10 Transceiver Crystal Notes

Receiver Crystal

The D4-10 transceiver used two receiver IF configurations during the course of its manufacture. The earlier models used an IF frequency of 45-MHz and the later models used 44.985-MHz.

The easiest way to determine which IF configuration was used is to look at the labeling on the permanently mounted crystal X1.

If X1 is marked 34.300-MHz, then the IF is 45.000-MHz.
Proof: 34.300-MHz + 10.7-MHz = 45.000-MHz

If X1=34.285-MHz, then the IF is 44.985-MHz.
Proof: 34.285-MHz + 10.7-MHz = 44.985=MHz

The receive crystal frequency is determined in accordance with the formula presented in the Kantronics D4-10 Operators Manual. The formula is:

RX crystal frequency = (operating frequency – Intermediate frequency)/64

Example-1: 6.024453-MHz = (430.55-MHz – 44.985-MHz)/64

Example-2: 6.024219-MHz = (430.55-MHz – 45.000-MHz)/64

Transmitter Crystal

The transmit crystal frequency is determined in accordance with the formula presented in the Kantronics D4-10 Operators Manual. The formula is:

TX crystal frequency = operating frequency/64

Example-1: 6.727343-MHz = 430.55-MHz/64

Crystal Specifications

The crystal specifications as defined in the Kantronics D4-10 Operators Manual are:

1. Fundamental mode
2. Frequency make, +/-10ppm (parts per million)
3. Series resonant
4. Resistance at 75 ohms, maximum
5. Co = 7pf maximum, 5pf typical (pf=picofarads)
6. Drive level 10mw maximum
7. Temperature stability: +/-30ppm -30C to +60C
8. Case: HC-50/u or HC-42/u

Crystals can be ordered from International Crystal Manufacturing (ICM) using catalog numbers 685252 for the RX crystal and 685249 for the TX crystal.

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