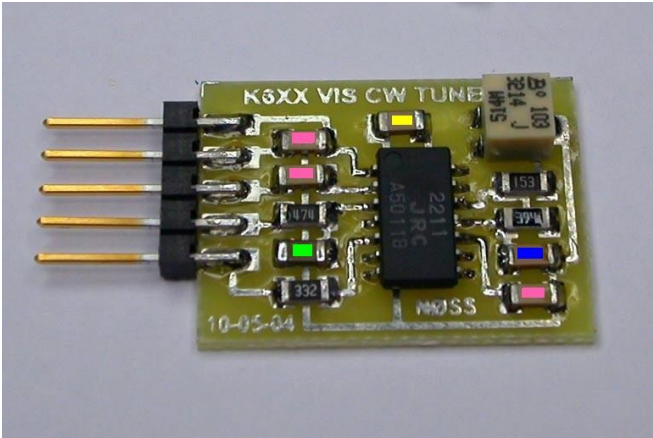


K6XX Visual CW Indicator

This is a real nifty little circuit that will allow you zero in on a cw signal to within $\pm 20\text{hz}$ of a signal. I use this feature all the time as I have trouble zero-beating a signal -hi! Just tune until the LED starts to blink to the cw and your on the signal. Above is the whole kit installed in my KX1.



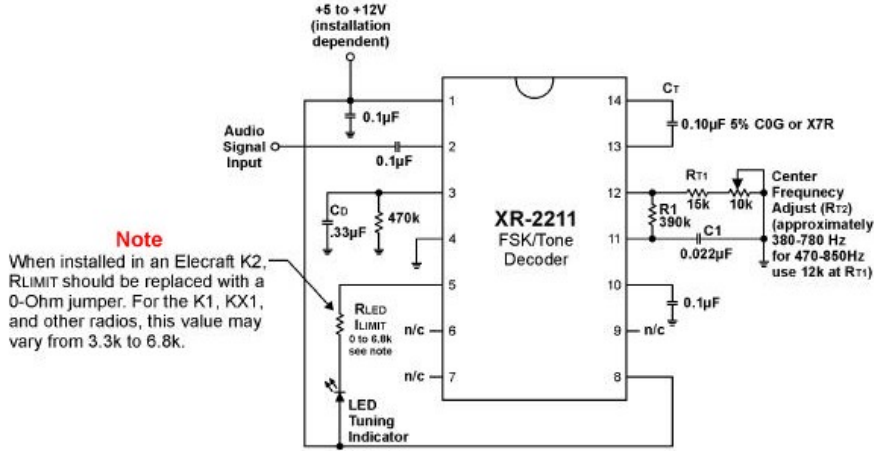
Picture below is the kit with all the SMD mounted to the PCB. The pot in the upper right tunes the circuit to your set sidetone.

This PCB can be mounted in a KX1, K1, K2 or any other rig. It's small enough to fit anywhere.

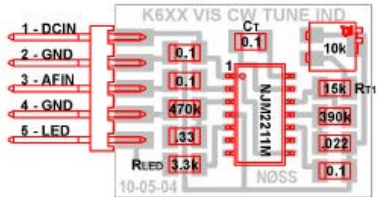


K6XX SMD CW Indicator installed on top of the ATU in my Elecraft KX1.

K6XX's Visible CW Tuning Indicator SMD Version

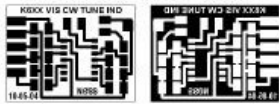


K6XX 'Visible' CW Tuning Indicator - Parts List



PC Board as Viewed from COMPONENT Side

PC Board Size: 1.00" x 0.75"



Quan.	Component	Mouser Part #
1	AVX SMD 1206 Cer Chip Cap 5% X7R 0.10uF 50V (C _T)	581-12065C104J
1	Xicon SMD Film Chip Cap 1206 50V X7R .022uF (C ₁)	140-CC502B223K
3	Xicon 1206 SMD Cer Chip Cap 50V 0.1uF	140-CC502B104K
1	Murata 1206 SMD Cer. Chip Capacitor .33UF 25V (C _d)	81-GRM426X334K50D
1	Xicon 1/8W SMD 1206 Film Resistor 0-Ohms R _{LED} (LIMIT)	263-0 for K2
1	Xicon 1/8W SMD 1206 Film Resistor 3.3k R _{LED} (LIMIT)	263-3.3k for K1 / KX1
1	Xicon 1/8W SMD 1206 Film Resistor 6.8k R _{LED} (LIMIT)	263-6.8k for K1 / KX1
1	Xicon 1/8W SMD Film Resistor 15K OHM 5% (R _{T1})	263-15K
1	Xicon 1/8W SMD (R ₁) Film Resistor 390K OHM 5%	263-390K
1	Xicon 1/8W SMD (R _d) Resistor 470K OHM 5%	263-470K
1	Bourns 4mm 5-Turn SMD Trimmer 10K (R _{T2})	652-3214J-1-103E
1	NJR SMD DMP14 Demod/Decod Equiv. to Exar XR-2211	513-NJM2211M
1	LED, if required (not supplied)	
OFF-BOARD CONNECTOR		
1	5-Pin Header	571-1029765
1	5-Pin Receptacle	571-874999
5	Receptacle Contact	571-860163

Operational Notes:

A few words might be appropriate about the operating 'characteristics' of this device.

It is **not** unusual for the Tuning Indicator LED to frequently blink dimly even though there appears to be no signal present. This is the PLL responding to on-frequency background noises which it interprets as a received signal. This effect will generally be more pronounced at narrower bandwidths of the CW filter, as slightly more 'ringing' of the received noise occurs. This is a normal occurrence and should *not* be viewed as a problem. You will quickly find that the Tuning Indicator is quite sensitive to in-band signals and that it will often lock onto a received signal which is almost below your hearing ability. We should view this not as a problem, but rather as an indicator that the PLL is working as intended.

As you tune through a noisy band, you will find that the Tuning Indicator LED will lock onto received signals, and the LED will change from periodically illuminating dimly to lighting more brightly, and much more solidly as you approach having the received signal centered within the passband of the PLL.

Once you have the received signal tuned within +/-20 Hz to 30 Hz of the center of the PLL, the LED will blink brightly in time with the keying of the received signal. This indicates that you should be tuned well within the passband of the other station's most narrow CW filter, even within a 100 Hz wide CW filter, if the other station happens to be using one.

At this point, you can always turn on your CW spotting tone to confirm that it and the received signal are very close to each other in frequency.

Suggested Installation of the SMD version of the K6XX Visible CW Tuning Indicator in the Elecraft KX1

v2r4 05/23/2005

Elecraft KX1 RF Board - Solder Side

In an effort to reduce possible confusion during installation, only the relevant PC board patterns are shown in this connection diagram.

Because the input sensitivity of the 2211 PLL IC is in the range of 3mV to 3V, input to the PLL should be picked off the output of the LM386 AF amp via a voltage divider, composed of two resistors. The hi-value resistor can be in the range of 100k to 47k and the lo-value resistor can be in the 1k to 3k range. 47k and 1k resistors are shown in the illustration.

