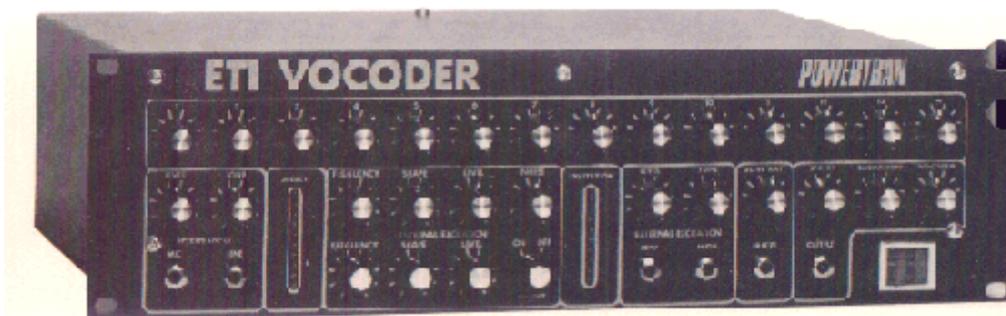


# ETI

## *ETI Vocoder 14 channel*

Powertran Electronics Info Sheet 1981-1982

Dropbox



### **ETI VOCODER 14 Channel Vocoder**

Put speech and the output of an instrument into the Vocoder and the instrument not the operator now appears to be doing the talking or singing! You now have vocal control of the amplitude and harmonic control of the instrument!

Use the internal excitation oscillators, change the frequency and the speaker suddenly changes sex!

Use the noise generator and there is whispering in the breeze!

Use the output of a cassette deck and the London Symphony Orchestra recites from the Kama Sutra!

### **Just a few of the possibilities!**

If the variations in amplitude and harmonic content of an audio signal can be analysed and applied to suitable electronic control circuitry than the basic sounds of

speech can be substituted for by almost anything and this is just what a vocoder does.

Designed by R.B.H. Becker and featured as a constructional article in Electronics Today International this design enables a vocoder of great versatility and high intelligibility to be built for an amazingly low price.

14 channels are used to achieve its high intelligibility, each channel having its own level control. There are two input amplifiers, one for speech either from microphone or a high level source e.g. mixer or cassette deck and one for external excitation (the substitution signal) from either high or low level sources. Each amplifier has its own level control and a rather special type of tone control giving varying degrees of bass boost with treble cut or treble boost with bass cut. The level of the speech and excitation signals are monitored by LED PPM meters with 10 lights - 7 green and 3 red which indicate the level at 3dB steps. There are three internal sources of excitation a noise generator and two pulse generators of variable frequency and pulse width. Any of the internal sources and - the external source can be mixed together. There is a voiced/unvoiced detector which substitutes noise for the - excitation signal at the points in speech where the vocal chord derived sounds of the speaker are substituted for by the unvoiced sounds of sibilants etc. There is a slew rate control which smooths out the changes in spectral balance and amplitude enabling a change of the speech into singing or chanting and other special effects. A foot switch is provided to permit a complete freeze in spectral balance and amplitude whenever required. An LED on this indicates when the freeze is in operation.

An output mixer allows mixing of the speech, external excitation and vocoder output. The majority of the components fit into the large analysis/synthesis board with the rest on 8 much smaller boards with the controls and sockets mounted on them for ease of construction. Connectors are used for the small amount of wiring between the boards.

The kit includes fully finished metalwork, professional quality components (all resistors 2% metal oxide) nuts, bolts etc. - even a 13A plug!

#### SPECIFICATION

14 channels: filters - 4th order with bandpass filters at 1/3 octave spacing  
LED Bar Display PPMs: for both speech and excitation  
Speech input amplifier:  
mic input : sensitivity 1mV  
mic input : impedance 100K  
line input : sensitivity 500mV  
line input : impedance 10K  
tone control: 9dB Treble boost - 6dB Bass cut/9dB Treble cut --6dB Bass boost  
Excitation input amplifier:  
low input: sensitivity 10mV

low input: impedance 100K  
high input: sensitivity 500mV  
high input: impedance 10K  
tone control: 9dB Treble boost - 6dB Bass cut/9dB Treble cut 6dB Bass boost  
Internal excitation: pseudo-random counter noise generator. 2 oscillators -  
range: 15Hz - 250Hz pulse width:  
fully variable  
Slew rate control: 100 :1 range. FREEZE by footswitch  
Voiced/unvoiced detector: AGC on noise generator to follow excitation signal  
Output amplifier: mixing controls for vocoder, speech bypass and external  
excitation bypass. Output level: 1V

