CircuitWerkes' CP-1m v1.0 Call progress Decoder Option Board

The CircuitWerkes CP-1 Call Progress Decoder is a precision tone decoder designed to listen for the presence of dial tone or busy signals on telephone systems that do not provide end of call battery signalling. The CP-1 is an option for CircuitWerkes AC-1, HC-3 & DR-10 products and connects via a series of three pin groups on each of those boards. When dial tone or busy is detected for a period of several seconds, the CP-1 causes the autocoupler to hang up. Note: high ambient audio levels can mask (or simulate) central office call progress tones, so some adjustment of send audio may be required for reliable operation. The send audio level may need to be set slightly lower than normal to allow the call progress decoder to recognize the tones.

The call progress decoder is jumperable to detect either or both dial and busy tones. Completely removing a jumper disables that particular function. The "numbered" positions are for detecting single tones used in many worldwide phone systems.   If you are detecting a single tone such as 425Hz, which is very common on some phone systems outside the USA, we suggest the longest possible delay because a single tone is easier to false than dual tones.   Turning the pot clockwise increases the delay before hang-up. The RNG jumper adds 10dB of gain to the input & **MUST** be "on" for normal "U.S. standard" busy detection.

A dedicated tone detector IC is used to monitor the phone line audio and determine when a valid call progress tone is present. The tone is then decoded by the microprocessor which also detects what tone you have selected to monitor. When a selected tone is detected, the microcontroller checks the time delay adjustment to determine how long the tone must be present before disconnecting. Since human voice and many musical instuments can produce valid call progress frequencies, the detection delay adjustment acts like an anti-falsing filter, preventing accidental disconnects. The detection delay is usually set to between 5 and 10 seconds for normal use.

Mode2
Normally "off". May be on for custom programming options if using a M-985 tone detector

Audio Range.
Must be "On" for busy detect

USA Dial Tone Detect

USA Busy Tone Detect

Worldwide tone detection frequencies. Specific tones used in various countries can be selected. Only one tone should be selected at a time and USA (dual) tones usually should be unjumpered when using single tones.

Tone Detection Delay Time