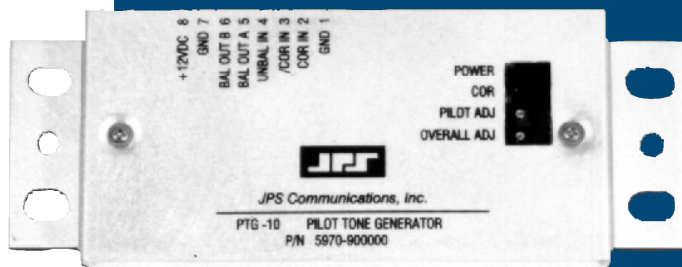


Raytheon

JPS Communications

PTG-10 Pilot Tone Generator



The **PTG-10 Pilot Tone Generator Module** produces a crystal controlled pilot tone as a means of transferring a COR signal from a remote receiver site to a local site containing a voter or repeater. Use of the PTG-10 transfers the COR signal over the same path as the receive audio, eliminating the need for a second communications path for the COR signal.

BENEFITS

- Allows Use of Low Cost Receiver in Voting System.
- Permits Audio and COR to Occupy Same Pair of Wires.
- Produces Two Standard Pilot Tones: 1950 Hz or 2175 Hz
- Insures the Integrity of Voting Receiver Link.
- Allows Voter to Ignore Faulty Receiver Site.
- Provides Screwdriver Type Terminal Block.
- Operates from +11 to +15 VDC.
- Balanced Audio Output for Long Distance Link.
- Provides two LEDs: Power and COR.
- Accepts Positive or Negative COR.

In an LMR voting system, receivers are strategically placed around a geographic area (at voting sites) to fill in dead spots where portable or mobile radios can not talk back to the main repeater site. The audio from each receiver is linked to the voter which continuously compares the signal from all receivers and passes through the best quality signal to the dispatcher, and/or repeater. In this system, it is necessary to transfer a receiver's COR or COS (Carrier Operated Relay or Carrier Operated Squelch) signal to the voter from a remote receiver site. COR is an indication that the receiver has broken squelch. A COR signal (DC logic) exits the receiver separately from the audio lines (AC signal), making it impossible to carry both on same audio pair. The function of the PTG-10 is to convert the COR logic to a pilot tone and send via the audio lines to the voter; therefore, making a two wire telephone circuit suitable for a remote receiver connection.

PTG-10 Pilot Tone Generator

SYSTEM OVERVIEW

The PTG-10 produces a crystal controlled pilot tone as a means of transferring a COR signal from a remote receiver site to a local site containing a voter or repeater.

The PTG-10 converts the COR signal to a pilot tone. The pilot tone is injected on the audio lines whenever the associated receiver is squelched, and removes the tone whenever

the receiver is unsquelched. When the receiver used in the voting application detects carrier (receives a signal), it unsquelches and issues a COR signal to the PTG-10. When the PTG-10 receives a COR signal the tone is removed from the audio link and the receiver audio is passed through the link to the voter.

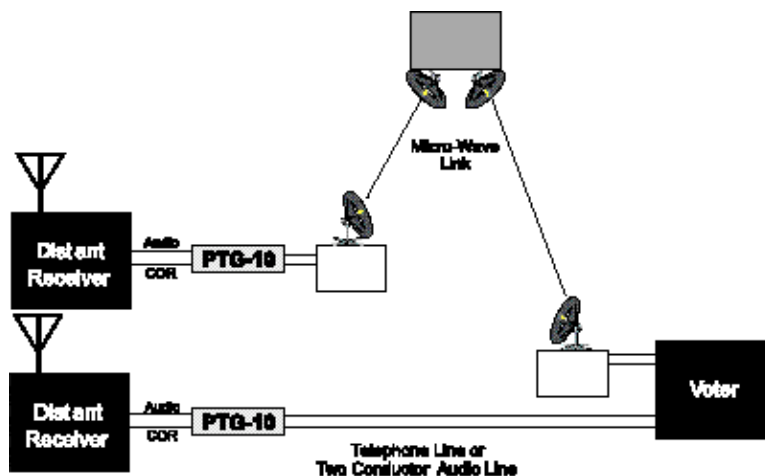
The pilot tone from the PTG-10 functions as a line proving tone to insure the integrity of the audio link in the following way: the removal of the pilot tone on the link notifies the voter to begin looking for voice signals from the voting receiver. If the voter doesn't sense voice coming from the receiver within a programmed time, it faults that particular voting site on the assumption

that either the voting receiver is not functioning, or the link is broken between receiver and the voter. A voter such as JPS Communications' SNV-12 disallows use of that voting input until voice is received from the distant receiver or until the pilot tone returns.

The PTG-10 is capable of injecting one of two user selectable pilot tones: 1950 Hz or 2175 Hz. A 2700 Hz tone, normally used in Europe, may be optionally ordered. The module is 6.84" x 2.42" x 1.19" and is enclosed in a metal box suitable for mounting to any flat surface or to a standard 19" rack. Audio input from the receiver is unbalanced, while audio output to the voter is configured for 600 Ohm balanced operation. The terminal block has provisions for a COR input (either positive or negative logic), power input (+11 to +15 VDC) and ground. Two LEDs are provided: One indicates the state of the receiver's COR signal and one is a power indicator. The pilot tone and the audio output levels (voice plus pilot tone) are independently adjustable.

SPECIFICATIONS

Electrical	
DC Input Power	+12 VDC ranging from +11 to +15 VDC @ 40 mA.
Input Impedance	50k Ohms unbalanced.
Output Impedance	600 Ohms balanced.
Frequency Response	Conservatively rated: 50 to 20 kHz \pm 2 dB.
Tone Frequencies	1950 Hz or 2175 Hz, jumper selectable.
Tone Stability	\pm 2 Hz.
Receiver Audio Input Range	-20 to +10 dBm, variable.
Pilot Tone Output Level	-20 to +3 dBm, variable.
General	
LED Indicators	Power and COR.
Size	6.84" x 2.42" x 1.19".
Weight	0.5 lbs.
Environmental	
Operating Temperature	-20 degrees C to +55 degrees C.
Storage Temperature	-40 degrees C to +85 degrees C.
Humidity	Up to 95% at 55 degrees C.
Shock	MIL-STD-810D, method 516.3 procedure VI.
Vibration	MIL-STD-810D, method 514.3 category I.



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