SNV-12™

SIGNAL-AND-NOISE VOTER COMPARATOR

OVERVIEW

The SNV-12 modular receiver voting system, long the industry leader due to capability and reliability, now can accept voting receiver audio backhauled via IP. Our SVM-3 modules, along with the QMT remotes at the receiver sites, reliably handle the challenges that network delays and jitter add to the voting process. SVM-3 modules can be plugged into existing SNV-12 chassis alongside current SVM-2 modules for flexible, low cost incremental upgrades. The SNV-12 uses Digital Signal Processing to continuously monitor multiple remote receiver sites and select the receiver with the best signal quality.

A typical application is an LMR system in which mobiles and portables can hear a repeater but the repeater can't hear them, due to their lower transmit power and/or the antenna size or placement. Remote receivers can be positioned in the communications dead spots, with audio from each receiver linked to the voter via IP network, T1 microwave, IP Fiber, landline, twisted pair, RF link, or fiber optics. The voter will select the best quality signal from all unsquelched remote receivers and forward this signal to the repeater for rebroadcast or monitor by a dispatcher, thus providing greater talk back range for the radios.

SVM-2 ANALOG

The SNV-12 uses a spectral approach to monitor the audio signals from each voting site. These algorithms continuously calculate a 31-discrete step Signal Quality Number for each voting receiver. The SNV-12 monitors all SVMs and votes the site with the best Signal Quality Number. This thorough voting process ensures the best site is voted even if the received signal is transmitted by a vehicle currently moving behind buidings or between remote receiver sites.

SVM-2 modules are used to connect to non-IP legacy backhaul (RT line or phone line, RF link, T1 telco, microwave). One SVM-2 module connects to one receiver site (up to 12 per chassis).

SVM-3 IP BACKHAUL

The SNV-12 IP Backhaul capability is backwards compatible with SNV-12 analog voters already deployed. The SVM-3 module, along with a QMT-1B unit (for Quality Measurement & Transport), allows the use of IP networks for transport of receive and transmit audio.

SVM-3 modules can coexist in an SNV-12 chassis along with SVM-2 modules. The SVM-3 also allows front panel force vote and force disable, just like the SVM-2.

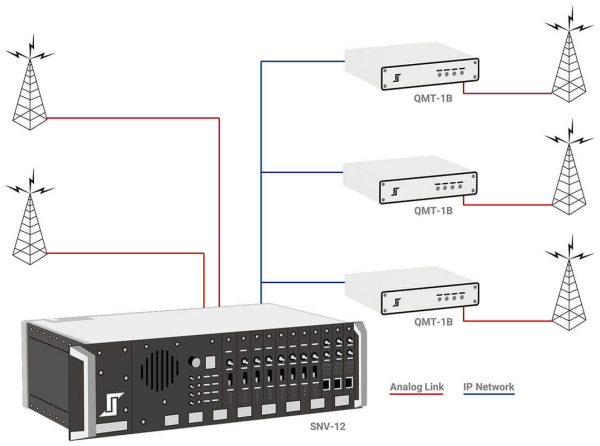
SVM-3 modules can connect to up to three receiver sites, each co-located with a QMT, for a total of 36 sites in a fully-IP chassis. More commonly, SVM-2s and SVM-3s reside together in an SNV-12 chassis.

KEY BENEFITS

- Enables the creation of extremely flexible cost-effective radio voting networks
- If leased lines are no longer available, allows existing SNV-12 voters to be upgraded to use existing private networks
- Brings audio to/from your remote sites using your IP network, IP microwave, or conventional analog backhaul
- Automatically synchronizes all incoming audio
- Accurately captures receiver's audio and noise qualities at remote site prior to encoding into RoIP
- Expandable to 60 sites
- Continuously monitors IP Links, loss triggers a fault and removes site features from voting consideration until link is restored
- System statistics and ability to monitor voted audio available via IP

APPLICATIONS

The SNV-12 voting criteria may be easily optimized to suit individual systems. DSP voice detection capability allows automatic faulting of receivers with inappropriately open squelches. The voting process is initiated whenever any receiver is unsquelched, signaled either by a loss of idle tone or by a hardwired COR output or multiplexer E-lead; individually configurable on each SVM-2.



THE ROLE OF THE QMT-1B

Network delays and jitter create challenges to traditional analog voting which requires time-synchronized signals from multiple voting receivers. These challenges are capably handled by the combination of the QMT-1B and the SVM-3, in conjunction with updated software in the CPM-3 Control Processor Module.

When and unsquelch condition occurs, the QMT-1B measures signal quality and converts the analog audio to IP for transfer to the SVM-3. The SVM-3 works in conjunction with the CPM-3 to monitor arrival timing of incoming audio. This allows the voted signals to be resynchronized for accurate voting and switching between sites during a voting sequence. The QMT-1B is available in single-channel or a rackmount multicircuit version.

SPECIFICATIONS

Size

5.25"H x 19" W x 11" D (13.3 x 48.3 x 28 cm)

Input Power

115 or 230 VAC +/- 15%, 47-63 Hz, 130 VA maximum for 'fully loaded' chassis; +11 to +15 VDC @5A nominal

Voting

SVM-2 implements both Lowest Noise (FM) and Highest Signal-to-Noise (AM or HF) voting. SVM-3 implements Lowest Noise (FM) voting.

Network Interface

RJ-45 Connector; 10/100 Base-T Ethernet, Web Configuration, Telnet