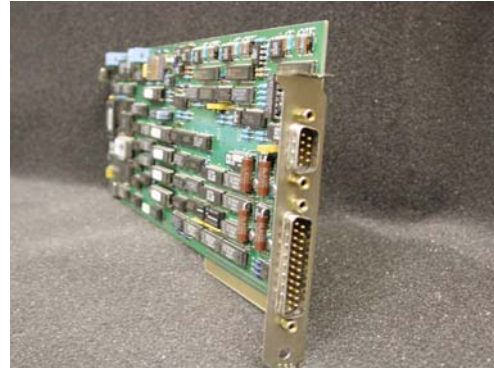


ISA-based PCM Bit Synchronizer Board TSNCxx-300

Features

- Tunable Bit Rates Up to 40 Mbps
- Occupies a Single ISA Slot
- BER Performance Better than 1.0 dB
- Selectable IRIG PCM Formats
- Selectable Loop Bandwidths
- Data Acquisition Up to +/-5% of Bit Rate
- Tracking Exceeds +/-20% of Bit Rate
- Complete Programming Documentation and Setup Software
- Optional Convolutional (Viterbi) Decoder Module

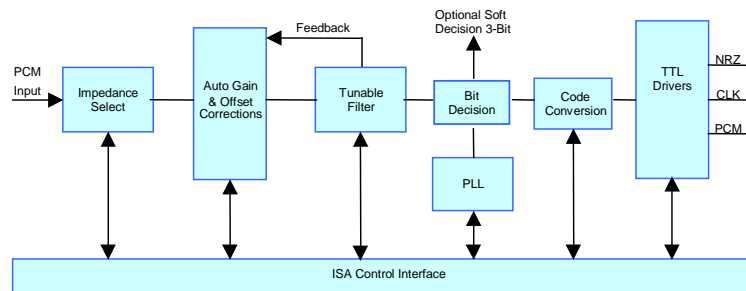


The PCM Bit Synchronizer card is a multifeatured, digitally controlled bit synchronizer that provides state-of-the-art BER performance. The TSNC bit sync excels in harsh noise conditions with signal-to-noise capabilities superior to every other board and box level unit in its class.

The PC-based TSNC module represents a breakthrough in high-speed digital bit synchronizers. Its patented phase-lock loop and tracking features allow the TSNC bit sync to attain the performance levels of box-level bit synchronizers costing two to three times as much, with equal performance.

Occupying a single ISA bus card slot, the TSNC bit sync provides complete front-end flexibility to the system integrator. Programmability includes selection of source and impedance, input code type and polarity, bit rate, loop and tracking bandwidths, output code and clock phase.

The TSNC bit sync is used in PCM applications where noise-reliable solutions are required for noise perturbation problems. Our bit sync design, which has received a U.S. patent, uses the advanced, low-power, high-reliability circuit components available on the market today. The automatic self-calibration of internal filters provides built-in adjustments over the lifetime of the board to offset the inevitable problems of component aging.



Input Signal	Codes	NRZ-L/M/S, BIØ-L/M/S, DBIØ-M/S, DM-M/S, RZ
	Level	250 mV to 10 volts peak-to-peak
	Derandomizer	Forward & reverse, 3 lengths; 9, 11, 15 (programmable)
	Impedance	75 ohms, or 10K ohms (programmable), 50 ohms available
	Sources	Four external data (programmable)
	Polarity	Normal or inverted (programmable)
	Loop Bandwidth	0.1, 0.5, 1.0, 1.6% (programmable)
	Operating Range	(NRZ codes) 100 bps to 5 Mbps, options down to 10 bps, up to 40 Mbps
	Operating Range	(All other codes) 100 bps to 2.5 Mbps, options down to 20 bps, up to 20 Mbps
Performance	Bit Error Rate	Within 1.0 dB of theoretical curve up to maximum data rate
	Acquisition Range	Up to +/- 5% of programmed data rate, $E_b/N_o = 15$ dB
	Acquisition Time	Within 50 bits, average, random data within 0.5% deviation from the programmed data rate, $E_b/N_o = 15$ dB
	Sync Maintenance	Retains sync with NRZ codes at $E_b/N_o = 3$ dB with 128 bit transition gaps occurring every 1024 bits with random data
	Bit Slippage	Maintains phase with BIØ codes at $E_b/N_o = 12$ dB with over 2000 continuous 1's or 0's, at $E_b/N_o = 0$ db with random data (NRZ & BIØ)
	Tracking Range	Exceeds +/- 20% of programmed data rate
	Baseline Variation	No degradation beyond 1dB from theoretical performance curve with superimposed wave form equal to 100% of the peak-to-peak signal input at 0.1% of the bit rate, BIØ codes
	DC Offset	100% of input signal level up to +/-10 Volts
Output	NRZ-L Data	TTL compatible into 50 ohms
	Selectable Data	Programmable PCM TTL compatible into 50 ohms
	Selectable Clock	0°, 90°, 180°, 270° (programmable)
Electrical and Environmental	Form Factor	Full length ISA card slot with D-type connector
	Temperature	0° to 50 °C (operating), -20 °C to 80 °C (storage)
	Humidity	20 to 95% noncondensing
	Power	+5V @ 1.30 amps, +/- 12V @ 0.30 amps
	Status	Sync, input, amplitude, rate deviation via ISA bus
	Connectors	D-type connectors on card edge
	Programming	Programming via ISA bus, 8- or 16-bit
Ordering Codes	TSNCxx-300-006	ISA Bit Sync, xx = 20 or 40 (Mbps)
Accessories	Software	Stand-alone DOS setup status software included with board
	Cable	D-type to BNC cable assembly included with board
	Documentation	Technical reference manual; installation and programming information

Note: Specifications do not apply for all possible combinations of bit sync settings and signal perturbations.