APOGEE LABS

2052 BSM1
**BIT SYNCHRONIZER**

FEATURES

- Four inputs
  - ◊ Input signal 0.2 to 10 Vp-p, selectable polarity, offset to +/- 15V
- 100 bps to 35 Mbps range for All codes
  - ◊ Tuning resolution 0.1%
- Randomizer / De-randomizer
- 1 dB of theoretical BER performance
- Requires two AL63xx chassis slots

OVERVIEW

The BSM1 accepts analog PCM data from one of four user selected inputs. It then extracts the data from a potentially perturbated noisy environment, reconstructs a coherent clock along with the recovered data signal. The output of the bit synchronizer is TTL data and clock as well as a bipolar representation of the data that is suitable for application to a tape recorder. The performance of the bit synchronization process is within 1dB of theory.

The BSM1 is compatible with the Apogee Labs AL63xx and AL43xx product lines. It is usually used to accept the base-band signal from a receiver or other data link receiving device that only provides the data stream without a coherent clock.

FUNCTIONAL DIAGRAM
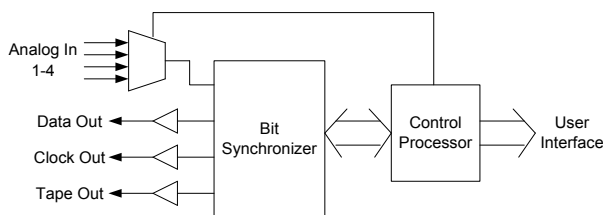
SPECIFICATIONS

INPUTS

- 4 inputs on BNC connectors; 0.2V to 10Vp-p; selectable polarity; offset to +/-15V
- Jumper selectable input termination; 10KΩ, 75Ω, 50Ω
- Base variation up to signal level at 0.1% of bit rate
- 100 bps to 35 Mbps NRZ codes, tuning resolution 0.1%
- Randomizer / De-randomizer; RNRZ-9,11,15,17,23

OUTPUTS

- 0° clock and data in TTL format; BNC connectors
- Bi-polar tape recorder output

SYNCHRONIZATION

- Loop bandwidth 0.1% to 3.2% of bit rate in 0.1% steps
- Capture range is 3 times programmed loopwidth, typical
- Tracking range: +/- 12%
- Sync threshold: 0 db for NRZ-L and Bi-Ø codes
- 1 dB theoretical BER performance

GENERAL

- Requires 2 AL63xx / AL43xx chassis slots