DELTA TELEMETRY SYSTEMS

DATA ACQUISITION

Dual/Quad PCM Bit Sync/BSS Data Quality Encapsulator

MODEL 2265EC

KEY FEATURES

- Best Source Selection Data Quality Encapsulation (DQE) Output FMTS: GDP Type 1 DQE, GDP Type 2 DQE
- 2 & 4 Channel Configurations
- Bit Rates: 5 bps to 40 Mbps
- Performance: Within 1 dB of theory, advanced lock detection down to -3dBEb/No
- Loop Bandwidth: 0.01% to 1.6% (Extended Range Optional)
- Supports NRZ-L/M/S, BiØ-L/M/S, DM-M/S, MDM-M/S.
- Data Quality Status: Eb/No, Bit Error Rate (BER), and Convolutional Error Rate (CER)
- Input Signal Status: Sync/Signal Loss, Bit Rate, Signal Level, Data Polarity, Eb/No.
- FEC: Viterbi Decoder & Convolution Encoder
- QOSK Support: OPSK/OQPSK/ SOQPSK
- Error Checking: Built-in BERT & Frame Sync Pattern Detector

* Optional

GENERAL DESCRIPTION

The GDP Model 2265EC Multi-Channel PCM Bit Synchronizer / BSS Data Quality Encapsulator (DQE) provides up to four high-performance bit synchronizer channels in a compact 2U chassis. Its optimized digital design delivers exceptional synchronization performance for both stand-alone bit synchronization and GDP Diversity Combining / Best Source Selector (BSS) applications. When used for BSS encapsulation, the BS input connects to the receiver's baseband analog output to enable accurate data quality measurement at the first point of reception.

The Model 2265EC maintains synchronization with the signal of interest down to –3 dB Eb/No at signal levels as low as 100 mVp-p. Acquisition is attainable in fewer than 50 bits, and synchronization can be sustained for at least 256 bit periods without a transition.

The Encapsulator combines reconstructed data and quality metrics into a GDP DQE transfer frame (ENCAPSULATION) for transport over a data link to a GDP Best Source Selector. This ensures that critical quality information gathered at reception is available remotely where BSS decisions are made.

The MD2265EC includes multiple data quality measurement features, including Eb/No (Signal Quality) to determine error performance. It also calculates BER from an embedded PCM frame synchronizer pattern, when present, and from the Viterbi stream when enabled. A built-in bit-error-rate test (BERT) function supports both short and long loop-back link testing, while an advanced lock detector provides a solid synchronization lock indication.

RELATED PRODUCTS

Receiver	Best Source Selector	Gateway	Ethernet Recorder
			

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TECHNICAL SPECIFICATIONS

Inputs, Each Bit Sync :

Analog Inputs:	Three (3) Data Inputs, selectable, for each synchronizer channel
Timing Input (Encapsulation):	One (1) 1-pps (TTL)
Input Termination:	Selectable: 75Ω (50Ω Optional) or 10k Ω
Signal Amplitude:	0.1 Vp-p to 10 Vp-p not to exceed ±10 V

BSS Encapsulation:

DQE Formats Supported:	GDP DQE Type 1 FMT (Quality for every bit); GDP DQE Type 2 FMT (Quality for every 4 bits);

Performance:

Bit Rate Range:	5 bps to 20 Mbps (40 Mbps Optional)
Tuning Resolution:	X.XXXEN (1≤N≤7)
DC Offset:	DC Offset + peak signal level not to exceed max. Signal Amplitude
AC Offset :	No degradation up to 100% of input signal at 0.1% of the bit rate
Loop Bandwidth:	0.01% to 1.6% (Extended LBW Range Optional)
Acquisition Range:	2x LBW
Sync Acquisition Threshold:	SNR 0 dB
Sync Maintenance:	SNR –3 dB
Sync Acquisition:	< 50 bits
Sync Retention:	256 bits without transitions
Bit Error Rate:	< 1 dB to 40 Mbps

Features:

Input/Output PCM Codes:	NRZ-L/M/S, BIØ-L/M/S, DBIØ-M/S, DM-M/S; MDM-M/S
Randomizer/Derandomizer:	IRIG 106 forward and reverse (Others Optional)
Descrambler:	CCITT V.35/V.36
Viterbi Decoder:	R 1/2, K 7 with G1/G2 Swap and G2 Invert, (others available)
Resequencer:	QPSK/OQPSK/SOQPSK
Frame Pattern Detector:	Up to 64 bits with programmable strategy and APC
Output Data Polarity:	Input polarity normal / inverted
Output Clock Phase:	0, 90, 180 & 270 degrees
BERT Function:	Bit-Error-Rate PRN Generator/Error Detector
Encapsulation:	Compatible with GDP Best Source Selector, up to 4-channels

Size & Weights

Dimensions:	3.5 (H) x 20 (D) x 19 (W), inches
Weight:	15 lbs
Environment:	Temperature Range: 10°C to 40°C Operational;-40°C to 70°C Storage Power: 150 watts max

Outputs, Each Bit Sync Channel:

TTL (Each Channel)- Reconstructed Data & Clock; Encapsulated Data & Clock; Sync; Loss
RS422 (Each Channel)- Reconstructed Data & Clock; Encapsulated Data & Clock
Bipolar Tape Output (Each Channel)- 1 Vp-p - Coded PCM
BERT BER Measurement Results on Front Panel Display and Remote Control Port

Recognizing that no standard product fits every mission, Delta Telemetry Systems is ready to deliver tailored solutions for your unique application requirements.

Specifications subject to change without notice.

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