



Multi-Channel Touch-Screen PCM BIT SYNCHRONIZER Model 2365A

Features

- ◆ Up to 8-Channels in 4U
- ◆ Bit Rate Range:
 - 5 bps to 20 Mbps
 - 5 bps to 40 Mbps (Option)
- ◆ Performance within 1 dB of theory
- ◆ Loop Bandwidth Settings from 0.01% to 1.6%
 - Extended LBW Range (Option)
- ◆ NRZ-L/M/S; BiØ-L/M/S; DM-M/S; MDM-M/S
- ◆ Randomizer/Derandomizer
- ◆ Descrambler
 - CCITT V.35 / V.36
- ◆ Viterbi Decoder
- ◆ Frame Pattern Detector
- ◆ Input Signal Status
 - Bit Sync and Signal Loss
 - Pattern Detector Status
 - Viterbi Decoder Status
 - Bit Rate Deviation
 - Signal Level
- ◆ Signal/Data Quality Status
 - Eb/No Measurement
 - Frame Sync Pattern Error Count (BER)
 - Frame Loss Count
 - Viterbi Error Count (CER)
 - BERT/ PRN BER Measurement
- ◆ Date Generator/Simulator
 - Serial
 - QPSK (Option)
- ◆ Advanced Lock Detection
- ◆ Auto Bit-Rate Scan (Option)
- ◆ QPSK/OQPSK/SOQPSK w/ Resequencer (Option)
- ◆ Remote Control
 - Ethernet
 - RS-232 or IEEE-488 (Option)
- ◆ 7 -inch High Chassis

General Description

The GDP Model 2365A Multi-Channel PCM Bit Synchronizer houses up to 8 high-performance bit synchronizer channels in a 4U chassis. The optimized digital design of this unit affords the highest performance characteristics currently available.

Control and monitoring of all parameters and features is accomplished by way of the local control interface using a PC, mouse (optional touch-screen) and keyboard. Remote control of the unit is through an Ethernet interface. (Other interfaces are available.)

The bit synchronizers are capable of maintaining synch at -3 dB Eb/No with signal levels as low as 0.1 Vp-p. Search acquisition is attainable in less than 50 bits and synchronization is maintained for a period of at least 256 bit periods without a transition.

Two Analog inputs are provided per channel. Optional digital inputs for RS-422 and TTL levels may be included. Each channel presents a variety of standard outputs to support complex system requirements. (Special outputs are available.)

A standard IRIG 106 randomizer/derandomizer (forward and reverse) is included as is a CCITT V.35 and V.36 descrambler.

A variety of Viterbi decoders are available including R1/2 K7 (Std), R3/4 K7 and R1/3 k7 (please inquire for other FEC options). Reed Solomon Decoding is an available option.

The Pattern Detector adds an additional level of synchronization assurance by invoking the Frame Pattern Detector. Automatic Polarity Correction (APC) may be invoked when using the Pattern Detector.

Data-stream quality is measured and reported to the user in the form of: Eb/No, Frame Synch Pattern BER / Viterbi Decoder CER. A data stream generator / simulator is available to facilitate system testing, and providing a BERT function.

An Auto Scan feature is available that allows the bit synchronizers to scan the input for up to 8 pre-selected bit rates, input codes and frame patterns. When an acceptable signal is present, the Bit Synchronizer automatically locks to it and recovers the data and clock. Should this signal drop-out, the bit synchronizer reinitiates the scan sequence.



Bit Sync 1	Bit Sync 2	Bit Sync 3	Bit Sync 4
Lock 12 dB 1.7 Vpp 5.0000e+006 bps	Lock 13 dB 2.5 Vpp 5.0000e+006 bps	Lock > 15 dB 4.1 Vpp 5.0000e+006 bps	No Signal < -3 dB < .1 Vpp 5.0000e+006 bps
Bit Sync 5	Bit Sync 6	Bit Sync 7	Bit Sync 8
Lock 14 dB 1.5 Vpp 1.0000e+006 bps	No Signal < -3 dB < .1 Vpp 1.0000e+006 bps	Lock 7 dB 3.8 Vpp 1.0000e+006 bps	Lock 11 dB 2.1 Vpp 1.0000e+006 bps



Multi-Channel PCM BIT SYNCHRONIZER Model 2365A

SPECIFICATIONS

Inputs, each Bit Sync:

Analog Inputs

2 Inputs per Bit Sync- 50 Ohms (optional 75Ω) or High Z.

Digital Inputs

Differential RS-422 and TTL (Optional) [Ask about other configurations]

Performance:

Bit Rate Range

5 bps to 20 Mbps (40 Mbps Optional)

Tuning Resolution

X.XXXE^N (1≤N≤7)

Input Levels

0.1 Vp-p Min., +/- 12 V Max.. (others available)

DC Offsets

100% of the input peak-to-peak signal level.

AC Offset

No degradation up to 100% of input signal amplitude at 0.1% of the bit rate.

Loop Bandwidths

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

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 (Optional)

Frame Pattern Detector

Up to 64 bits with programmable strategy and APC

Auto Scan (Optional)

Up to 8 preset: Bit Rate, Code, Frame

pattern per Bit

Synchronizer.

Output Data Polarity

Normal / Inverted.

Output Clock Phase

0°, 90°, 180°, 270° to
20 Mbps; 0°, 180° in
the range 20 Mbps to
40 Mbps.

BERT Function (option)

Bit-Error-Rate PRN

Generator/Error Detector



Outputs, each Bit Sync Channel:

TTL (Each Channel) - Coded PCM and Clock (Programmable 0°, 90°, 180°, 270°)

RS422 (Each Channel) - Coded PCM and Clock (Programmable 0°, 90°, 180°, 270°)

Bipolar Tape Output (Each Channel) - 1Vp-p - Coded PCM

(Other Output Configurations are available.)

Lock Status for each channel

Signal Quality Status: Eb/No, Bit Rate Deviation, BERT / PRN BER or Viterbi CER Measurements

Ordering Information

081022

MD2365A-0x Basic Dual Channel Unit (20 Mbps)
x=even # channels. [e.g. 6 Ch unit order MD2365A-06]
OP2365A-01 Bit Rate to 40 Mbps
OP2365A-05 QPSK & OQPSK
OP2365A-06 SOQPSK
OP2365A-07 Touch-Screen Display
OP2365A-22 Special Remote Control

OP2365A-40 Special Rear Panel
OP2365A-43 BERT
OP2365A-45 Auto Scan
OP2365A-70 75 ohm
OP2365A-91 Extended Loop Bandwidth Range
OP2365A-92 Reed Solomon Decoder

Recognizing that no standard product can meet all the needs of all users, GDP stands ready to provide units tailored to unique applications.

The statements in this data sheet are not intended to create any warranty, expressed or implied. Equipment specifications are subject to change without notice.

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