Bit Error Rate Tester

gigaBERT GB700

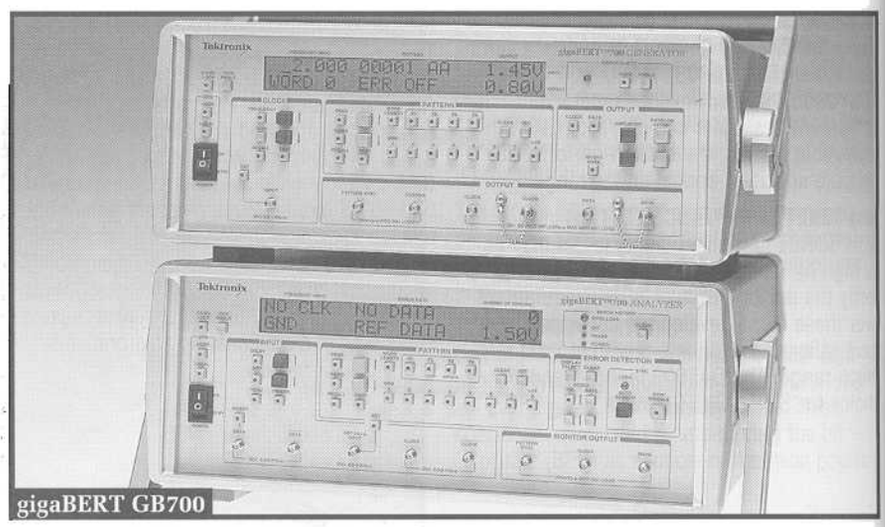
Features

gigaBERT GB700

- Operating Frequency Range 700 Mb/s
- Internal PLL Synthesized Clock Source
- PRBS 2n-1; n = 7, 15, 17, 20, 23
- 128 Kbit Programmable Pattern Memory
- Auto-synchronization
- Clock/Data Delay 4 ns, 20 ps Resolution
- TTL, ECL and PECL I/O Compatible
- Reference Data Input for Proprietary Framed Data
- Pattern Editor (Windows-based) for Custom Word Patterns
- Reference Data Input for Proprietary Framed Data
- Phase Synchronous Clock and Data Edge Tracking
- Supports BURST Mode Operation

Applications

- LAN/SONET/SDH Component Development
- Satellite System Testing
- Digital Transmission System Design
- Fibre Channel Testing
- Uncompressed Digital Video
- High-speed ATM Margin Testing
- Parallel-to-Serial Analysis with MB100



gigaBERT GB700

gigaBERT GB700 Pattern Generator and Error Detector

The GB700 operates at bit rates up to 700 Mb/s. This instrument is cost-effective for lower-speed applications today and will accommodate your future higher speed requirements as well.

SYMMETRICAL, LOW-JITTER OUTPUT WAVEFORMS

The GB700 generates low-jitter, symmetrical waveforms over its entire operating frequency range. The clock and data ports provide both true and inverted output signals. The instrument can drive single-ended or differential ECL or PECL inputs and also provides levels suitable for TTL inputs.

PRBS OR USER-DEFINED TEST PATTERNS

By generating pseudo-random bit sequences (PRBS) up to 2^{23}-1 bits in length, or user-programmable patterns containing up to 128 Kbits, the user can effectively simulate live traffic or "worst case" patterns. Patterns can be created locally using setup menus or externally by using a workstation or PC. A PC Windows-based Pattern Editor software package comes with the GB700. Externally created patterns can be downloaded via the GPIB or RS-232 port. All user patterns are saved in battery-backed RAM.

ADJUSTABLE INPUTS FOR MAXIMUM FLEXIBILITY

The clock and data ports on the GB700 Error Detector accept both true and inverted inputs. Single-ended or differential signals can be internally terminated. Input data delay is adjustable to accommodate different clock and data signal path delays.

AUTO SEARCH FOR EASY SETUP

Auto search greatly simplifies the Error Detector setup. The GB700 Error Detector automatically synchronizes to the incoming signal by 1) Setting the input data decision voltage to its optimum value; 2) Adjusting input data delay for an optimum clock/data phase relationship; 3) Selecting the correct PRBS test pattern; and 4) selecting the correct pattern polarity (normal or inverted).

Not only will the GB700 Error Detector synchronize with any pattern sourced by a gigaBERT Pattern Generator, it can perform a bit-by-bit comparison and bit error analysis on an arbitrary signal if provided with a known good external Reference data stream.

POWERFUL ANALYSIS AND REPORTING FUNCTIONS

The GB700 performs a full-rate, bit-by-bit analysis of the received signal. Bit error results are then used to calculate three bit error rate (BER) measures. Total BER is calculated from the last power-on or reset. Window BER is calculated over a sliding window specified in terms of time (1 second to 24 hours) or bits (1^8– to 1^{16}-Bits). Test BER is calculated from the start of the current test.

For your local Tektronix representative see the list in the back of this catalog or outside the U.S. call: 1-503-627-1933, inside the U.S. call: 1-800-426-2200.

See Tektronix on the World Wide Web: http://www.tek.com

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Moreover, the GB700 calculates errored seconds (ES), percentage error-free seconds (%EFS), severely-errored seconds (SES), degraded minutes (DM), unavailable seconds (US), and loss of signal (LOS) seconds. All bit error results – including the three BER measures – are calculated simultaneously and may be displayed during a test or after a test has been completed. A hard copy of all test results can be generated locally by connecting a printer to the parallel printer port or GPIB or RS-232 port. Reports may be printed when an error is detected, at the end of test intervals, or both.

FRONT PANEL OR AUTOMATED OPERATION
The GB700 provides easy operation augmented by set-up store and recall. Clear, concise LCD displays of setup and results make it easy to use.

The GB700 Pattern Generator and Error Detector can be controlled via the GPIB or RS-232 interface ports. The gigaBERT remote command set includes commands for all setup menus and front panel selections. The status of front panel indicators and test results can be remotely accessed.

BURST MODE
BURST mode, operation allows for operation with non-continuous external clocks. Use of BURST mode requires ECL-level signals with a minimum rate during the burst of 150 kHz. This is a standard feature of the GB700.

Characteristics

PATTERN GENERATOR
Frequency Range –
Internal Clock Source: 150 Kb/s to 700 Mb/s.
External Clock: 150 Kb/s to 705 Mb/s.

Freq. Resolution (Internal Clock) – 1 kHz.

Clock Output Amplitude – 500 mV to 2.0 Vp-p in 50 mV steps.

Clock Output Offset – 2.0 V to 1.0 V in 50 mV steps.

Data Output Amplitude – 500 mV to 2.0 Vp-p in 50 mV steps.

Data Output Offset – 2.0 V to 1.0 V in 50 mV steps.

Data Delay Range – ±4 ns.

Data Delay Increments – 20 ps.

Clock Delay – ±4 ns.

Clock Delay Increments – 20 ps.

Std. Programmable Memory – 128 Kbits.

Optional Memory – none.

PRBS Patterns (2^n –1) – 7,15,17,20,23.

Burst Mode (ECL levels only) – Standard Feature.

ERROR DETECTOR
Frequency Range With Burst Mode – 150 Kb/s to 700 Kb/s.

Burst Mode (ECL levels only) – Standard Feature.

Clock Input Levels (max) – 500 mV to 6.0 Vp-p.

Clock Input Terminations – GND, AC, –2 V, +3 V.

Clock Input Threshold – 3.00 to +4.5 V in 50 mV steps.

Data Input Level (max) – 500 mV to 6.0 Vp-p.

Data Input Threshold – 3.00 to +4.5 V in 50 mV steps.

Data Input Terminations – GND, AC, –2 V, +3 V.
Single ended or differential operation for clock and data inputs.

PHYSICAL CHARACTERISTICS

Dimensions	mm	in.	mm	in.
Height	152	6	152	6
Width	366	14.4	366	14.4
Depth	340	1304	419	16.5
Weight	**kg**	**lbs.**	**kg**	**lbs.**
Net	10	22	10	22

ORDERING INFORMATION

For price information: Outside the U.S. contact your local Tektronix representative, inside the U.S. see the price list in the back of this catalog.

GB700
700 Mb/s BERT Generator and Detector.
Includes: Power Cord, Manual, and Pattern Editor Software.

Opt. 02 – 75 Ω Term Both Sets.

Opt. 2M – Rack Mount – 2.

INTERNATIONAL POWER PLUG OPTIONS
Opt. A1 – Universal Euro 220 V, 50 Hz.
Opt. A2 – United Kingdom 240 V, 50 Hz.
Opt. A3 – Australian 240 V, 50 Hz.
Opt. A4 – North American 240 V, 60 Hz.
Opt. A5 – Switzerland 220 V, 50 Hz.

GB700T
700 Mb/s BERT Pattern Generator.

Opt. 02 – 75 Ω Term Pattern Generator Only.

Opt. 1M – Rack Mount.

INTERNATIONAL POWER PLUG OPTIONS
Opt. A1 – Universal Euro 220 V, 50 Hz.
Opt. A2 – United Kingdom 240 V, 50 Hz.
Opt. A3 – Australian 240 V, 50 Hz.
Opt. A4 – North American 240 V, 60 Hz.
Opt. A5 – Switzerland 220 V, 50 Hz.

GB700R
700 Mb/s BERT Error Detector.

Opt. 02 – 75 Ω Term Error Detector Only.

Opt. 1M – Rack Mount.

INTERNATIONAL POWER PLUG OPTIONS
Opt. A1 – Universal Euro 220 V, 50 Hz.
Opt. A2 – United Kingdom 240 V, 50 Hz.
Opt. A3 – Australian 240 V, 50 Hz.
Opt. A4 – North American 240 V, 60 Hz.
Opt. A5 – Switzerland 220 V, 50 Hz.

RECOMMENDED ACCESSORIES
Soft Carrying Case – Order 016-1442-00.
Hard Carrying Case – Order 016-1443-00.
Rack Mount – Order 016-1462-00.
10 ft. 25-Pin Male-to-Male RS-232 Cable – Order 012-1384-00.

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