GUZIK PRODUCT BULLETIN

4Gbit/s
Read-Write Analyzer RWA-2004

4Gbit/sec Maximum Data Rate

2GHz Analog Bandwidth for all Parametric Measurements

Pattern Generator with 1psec Resolution of Bit Precompensation*

PRML Chip Integration up to 4Gbit/s

Servo Writing and Processing

* US Patent 6,760,171 B2

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RWA 2004 Performance Specifications:

Pattern Generator

- **Minimum bit cell:** 250psec
- **Absolute position accuracy for any transition:** 5psec (typ) 10psec (max)
- **Precompensation resolution for any transition:** 1psec
- **Jitter at 2Gbit/sec:**
  - Random Pattern, RMS: 2psec
  - Repetitive Pattern, RMS: 2psec
- **Frequency resolution:** better then 1Hz
- **Frequency stability**: ±2.5ppm up to 75°C, ±1ppm/year
- **Random pattern maximum length:** up to 2Mbit

PRML Chip Integration

- **Data Rate:** up to 4Gbit/s (limited by available commercial PRML chips)
- **PRML chips:** Chips from various manufacturers are supported. New PRML chips can be integrated upon request.
- **Channel Optimization**
- **Wide range of PRML Tests**

Analog Channel

- **Bandwidth:** more then 2GHz at – 3dB
- **Flatness:** ± 0.2dB up to 1GHz, ±0.5dB up to 1.8GHz
- **Group delay:** ±100psec up to 1GHz, ±200ps up to 1.8 GHz
- **Non-linear distortion:** better than 1% (entire bandwidth, nominal level)
- **Minimum pulse width (PW) to be measured:** 170psec
- **Parametric measurement accuracy (entire bandwidth):**
  - TAA: ±0.5dB*
  - Pulse width: 3% or 20psec whichever is greater*
  - SNR: ±0.5dB
  - Modulation: ± 2%*
  - Crest factor: ± 2%
  - Overwrite: ± 0.2dB
- Measurements conditions: sinewave signal without noise.

Specifications are subject to change without notice.

RWA 2004 Physical Specifications:

Physical

- **Size:** 22.1” x 17.6” x 10.8”
- **Weight:** 46 lbs.
- **Power:** 110 VAC (± 10%, 50/60 Hz, 4A approximately)
  230 VAC (± 10%, 50/60 Hz, 3A approximately)

RWA 2004 Options:

OPTION	PERFORMANCE
Spectrum Analyzer SA-960	Frequency domain tests to 960MHz
Universal Preamplifier 10	8Gbit/s write data speed, DC to 4GHz analog bandwidth
MR7 Read/Write Amplifier for GMR and TMR heads	4Gbit/s write data speed, 3GHz analog bandwidth
Universal Preamplifier 8	2Gbit/s write data speed, 1.8GHz analog bandwidth
MR5 Read/Write Amplifier for GMR heads	2Gbit/s write data speed, 1.5GHz analog bandwidth
MR5L Low-Impedance Read/Write Amplifier for TMR heads	2Gbit/s write data speed, 2GHz analog bandwidth
Programmable Octave Filters	1-2GHz, 0.5-1GHz, 0.25-0.5GHz, 0.125-0.25GHz, 0.05-0.125GHz, and 0.05-0.02GHz
Programmable Octave Differentiators	1-2GHz, 0.5-1GHz, 0.25-0.5GHz, 0.125-0.25GHz, 0.05-0.125GHz, and 0.05-0.02GHz
Guzik Servo for Guzik and Non Guzik Spinstands	Guzik Servo Revision 4, Servo writing up to 1,024 sectors, 50 kHz servo sampling rate
Chip Adapter Interface CAI-4000	Up to 4 Gbit/sec data rate