

TBS1000 and TDS2000C Series

Reliability by Design

Technical Brief

What you will learn:

How the product design creates the unique combination of advanced performance and measurement accuracy. The outstanding reliability of these instruments is unmatched in its class. All this at an affordable price.

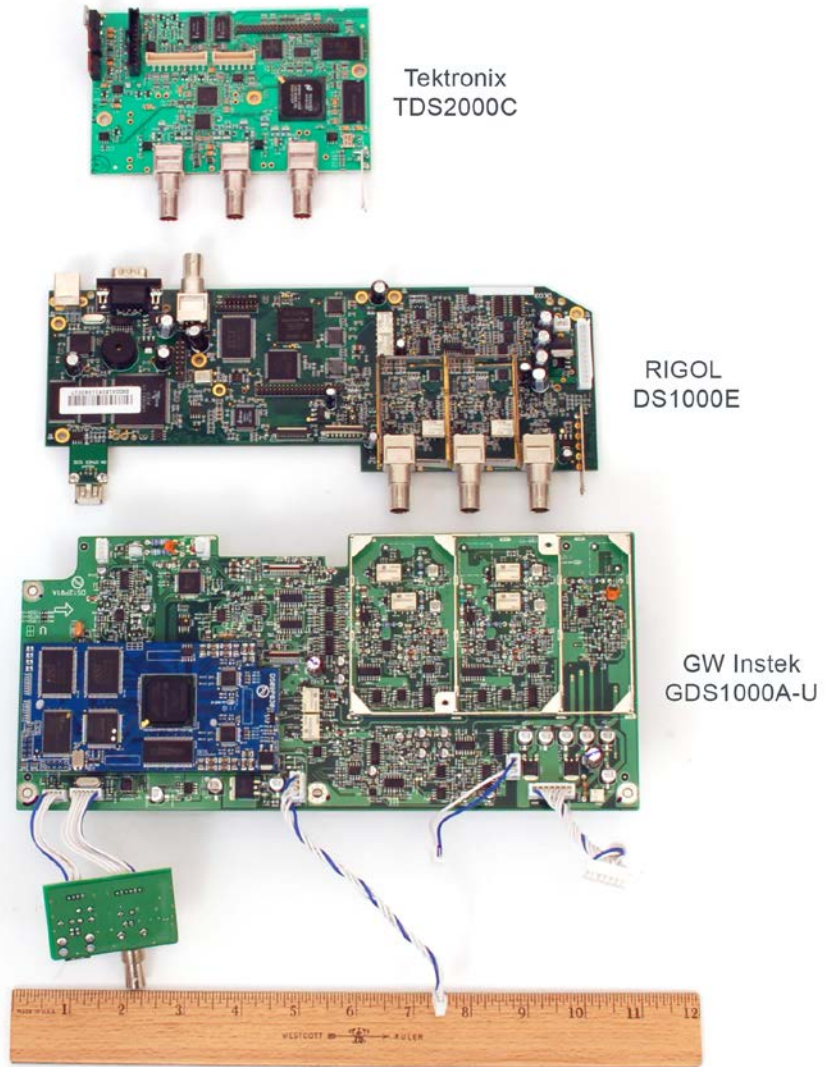
The Tektronix TBS1000 and TDS2000C Series are based on the dependable Tektronix TDS architecture, which has sold more than half a million units – this makes these products by far the most popular oscilloscopes in the world....read on to find out why.

- **Custom Integrated Circuits**
- **No Cooling Fan**
- **Industrial-grade Display**
- **Industry-leading Warranty**
- **Designed and Manufactured by Tektronix**
- **Continuous Improvement**
- **World Class Service and Support Networks**

Custom Integrated Circuits

The TBS/TDS Series platform is built around custom-designed integrated circuits (ASICs). This design choice has advantages in both performance and reliability of the oscilloscopes.

- The Tektronix custom ASICs are able to deliver best-in-class sampling rates of up to 2 GS/s on all channels simultaneously.
- At the same time use of these ASICs greatly simplifies the design and complexity of the electronic circuitry inside the oscilloscope:
 - Far fewer electronic components than most other oscilloscopes in their class, which often rely on commercial off-the-shelf components.
 - Fewer components reduces the potential points of failure and variability in performance.
- Another advantage that comes from using custom integrated circuits rather than commercial off-the-shelf components is improved thermal performance.
 - The high level of integration makes the power consumption low, less than 30W.





The Tektronix TBS1000 is the latest oscilloscope series based on the TDS architecture.

No Cooling Fan

- The low power consumption means TBS/TDS Series oscilloscopes do not require a cooling fan.
- Cooling fans involve moving parts and often present weak links for the reliability of an oscilloscope:
 - Prone to ingesting dust and pollutants, which can possibly have detrimental effects on the performance and life-time of other electronic and mechanical components inside the oscilloscope.
 - An advantage of the fan-free design of the TBS/TDS oscilloscopes is the products' quiet operation, an attribute that engineers who spend much time using their oscilloscopes appreciate.

Industrial-Grade Display

The TBS/TDS Series platform uses industrial-grade LCD displays.

- Better brightness and viewing characteristics
- Longer lifetime than the consumer-grade displays used in most other entry-level oscilloscopes.
 - For example, the LED backlight component's lifespan in typical industrial displays is rated at twice the lifetime of those found in consumer grade displays.

Industry-Leading Warranty

In the unlikely event that one of the TDS/TBS oscilloscopes ever experiences failure throughout its lifetime, these products offer the most generous warranties found in their respective class:

- **TBS1000:** Tektronix 5-year warranty
- **TDS2000C:** Tektronix lifetime warranty

The Tektronix standard warranties cover display-related failures which are sometimes explicitly excluded by other entry-level scope vendors from their warranty terms.



Every Tektronix oscilloscope coming off the production line passes thorough testing and quality inspections.



Tektronix quality improvement teams continuously monitor progress towards lower field failure rates

Designed and Manufactured by Tektronix

Tektronix maintains full control of design and production to deliver the best quality entry-level oscilloscopes in the market. The TDS/TBS Series platform is designed and manufactured by Tektronix in-house.

- Tektronix USA-based oscilloscope design team.
- Tektronix world-class manufacturing facilities in Shanghai, China.
- No entry-level products purchased from 3rd party OEM vendors

World-Class Service & Support Network

Tektronix world-class service and support network minimizes customer downtime and frustration:

- Global service and support network.
- Technical support, a variety of service and repair plans to fit your needs.

Calibration plans for your Tektronix and non-Tektronix equipment. On-line scheduling and tracking tool, 24/7.

Continuous Improvement

While already yielding very low field failures rates on the TBS1000 and TDS2000C Series oscilloscopes, Tektronix continuously puts effort into further improving these products' quality.

- Tektronix manufacturing and engineering staff track quality metrics on a continuous basis and analyze the root causes of all reported failures.
- Countermeasures are applied to all problems in order to prevent the same failure from occurring again.

The Tektronix design, quality and manufacturing teams work hand in hand with suppliers to meet the challenging internal target of reducing field failures by 50% each year.

ASEAN / Australia (65) 6356 3900
 Austria* 00800 2255 4835
 Balkans, Israel, South Africa and other ISE Countries +41 52 675 3777
 Belgium* 00800 2255 4835
 Brazil +55 (11) 3759 7627
 Canada 1 (800) 833-9200
 Central East Europe and the Baltics +41 52 675 3777
 Central Europe & Greece +41 52 675 3777
 Denmark +45 80 88 1401
 Finland +41 52 675 3777
 France* 00800 2255 4835
 Germany* 00800 2255 4835
 Hong Kong 400-820-5835
 Ireland* 00800 2255 4835
 India +91-80-30792600
 Italy* 00800 2255 4835
 Japan 0120-441-046
 Luxembourg +41 52 675 3777
 Macau 400-820-5835
 Mongolia 400-820-5835
 Mexico, Central/South America & Caribbean 52 (55) 56 04 50 90
 Middle East, Asia and North Africa +41 52 675 3777
 The Netherlands* 00800 2255 4835
 Norway 800 16098
 People's Republic of China 400-820-5835
 Poland +41 52 675 3777
 Portugal 80 08 12370
 Puerto Rico 1 (800) 833-9200
 Republic of Korea +822-6917-5000
 Russia +7 495 664 75 64
 Singapore +65 6356-3900
 South Africa +27 11 206 8360
 Spain* 00800 2255 4835
 Sweden* 00800 2255 4835
 Switzerland* 00800 2255 4835
 Taiwan 886-2-2656-6688
 United Kingdom* 00800 2255 4835
 USA 1 (800) 833-9200

* If the European phone number above is not accessible, please call +41 52 675 3777
 Contact List Updated June 2013

For Further Information

Tektronix maintains a comprehensive, constantly expanding collection of application notes, technical briefs and other resources to help engineers working on the cutting edge of technology. Please visit www.tektronix.com

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