

TBS1000X Series Oscilloscopes Safety and Installation

Instructions



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071-3757-00

Contacting Tektronix

Tektronix, Inc., 14150 SW Karl Braun Drive, P.O. Box 500, Beaverton, OR 97077, USA

For product information, sales, service, and technical support:

In North America, call 1-800-833-9200.

Worldwide, visit www.tek.com to find contacts in your area.

Important safety information

This manual contains information and warnings that must be followed by the user for safe operation and to keep the product in a safe condition. To safely perform service on this product, additional information is provided at the end of this section.

General safety summary

Use the product only as specified. Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. Carefully read all instructions. Retain these instructions for future reference.

Comply with local and national safety codes.

For correct and safe operation of the product, it is essential that you follow generally accepted safety procedures in addition to the safety precautions specified in this manual.

The product is designed to be used by trained personnel only.

Only qualified personnel who are aware of the hazards involved should remove the cover for repair, maintenance, or adjustment.

Before use, always check the product with a known source to be sure it is operating correctly.

This product is not intended for detection of hazardous voltages. Use personal protective equipment to prevent shock and arc blast injury where hazardous live conductors are exposed.

While using this product, you may need to access other parts of a larger system. Read the safety sections of the other component manuals for warnings and cautions related to operating the system.

When incorporating this equipment into a system, the safety of that system is the responsibility of the assembler of the system.

To avoid fire or personal injury

Use proper power cord. Use only the power cord specified for this product and certified for the country of use.

Do not use the provided power cord for other products.

Ground the product. This product is grounded through the grounding conductor of the power cord. To avoid electric shock, the grounding conductor must be connected to earth ground. Before making connections to the input or output terminals of the product, ensure that the product is properly grounded.

Do not disable the power cord grounding connection.

Ground-referenced oscilloscope use. Do not float the reference lead of a TPP-series probe when using with the TBS1102X oscilloscope. The reference lead must be connected to earth potential (0 V).

Power disconnect. The power cord disconnects the product from the power source. See instructions for the location. Do not position the equipment so that it is difficult to access the power cord; it must remain accessible to the user at all times to allow for quick disconnection if needed.

Connect and disconnect properly. Do not connect or disconnect probes or test leads while they are connected to a voltage source.

Use only insulated voltage probes, test leads, and adapters supplied with the product, or indicated by Tektronix to be suitable for the product.

Observe all terminal ratings. To avoid fire or shock hazard, observe all ratings and markings on the product. Consult the product manual for further ratings information before making connections to the product. Do not exceed the Measurement Category (CAT) rating and voltage or current rating of the lowest rated individual component of a product, probe, or accessory. Use caution when using 1:1 test leads because the probe tip voltage is directly transmitted to the product.

Do not apply a potential to any terminal, including the common terminal, that exceeds the maximum rating of that terminal.

Do not float the common terminal above the rated voltage for that terminal.

Do not operate without covers. Do not operate this product with covers or panels removed, or with the case open. Hazardous voltage exposure is possible.

Avoid exposed circuitry. Do not touch exposed connections and components when power is present.

Do not operate with suspected failures. If you suspect that there is damage to this product, have it inspected by qualified service personnel.

Disable the product if it is damaged. Do not use the product if it is damaged or operates incorrectly. If in doubt about safety of the product, turn it off and disconnect the power cord. Clearly mark the product to prevent its further operation.

Before use, inspect voltage probes, test leads, and accessories for mechanical damage and replace when damaged. Do not use probes or test leads if they are damaged, if there is exposed metal, or if a wear indicator shows.

Examine the exterior of the product before you use it. Look for cracks or missing pieces.

Use only specified replacement parts.

Do not operate in wet/damp conditions. Be aware that condensation may occur if a unit is moved from a cold to a warm environment.

Do not operate in an explosive atmosphere.

Keep product surfaces clean and dry. Remove the input signals before you clean the product.

Provide proper ventilation. To ensure proper cooling, keep the sides and rear of the instrument clear of obstructions. Slots and openings are provided for ventilation and should never be covered or otherwise obstructed. Do not push objects into any of the openings.

Provide a safe working environment. Always place the product in a location convenient for viewing the display and indicators. Avoid improper or prolonged use of button pads. Be sure your work area meets applicable ergonomic standards.

Probes and test leads

Before connecting probes or test leads, connect the power cord from the power connector to a properly grounded power outlet.

Keep fingers behind the finger guards on the probes.

Remove all probes, test leads and accessories that are not in use.

Use only correct Measurement Category (CAT), voltage, temperature, altitude, and amperage rated probes, test leads, and adapters for any measurement.

Beware of high voltages. Understand the voltage ratings for the probe you are using and do not exceed those ratings. Two ratings are important to know and understand:

- The maximum measurement voltage from the probe tip to the probe reference lead
- The maximum floating voltage from the probe reference lead to earth ground

These two voltage ratings depend on the probe and your application. Refer to the Specifications section of the manual for more information.

WARNING. To prevent electrical shock, do not exceed the maximum measurement or maximum floating voltage for the oscilloscope input BNC connector, probe tip, or probe reference lead.

Connect and disconnect properly. Connect the probe output to the measurement product before connecting the probe to the circuit under test. Connect the probe reference lead to the circuit under test before connecting the probe input. Disconnect the probe input and the probe reference lead from the circuit under test before disconnecting the probe from the measurement product.

Connect and disconnect properly. De-energize the circuit under test before connecting or disconnecting the current probe.

Connect the probe reference lead to earth ground only.

Do not connect a current probe to any wire that carries voltages above the current probe voltage rating.

Inspect the probe and accessories. Before each use, inspect probe and accessories for damage (cuts, tears, or defects in the probe body, accessories, or cable jacket). Do not use if damaged.

Service safety summary

The Service safety summary section contains additional information required to safely perform service on the product. Only qualified personnel should perform service procedures. Read this *Service safety summary* and the *General safety summary* before performing any service procedures.

To avoid electric shock. Do not touch exposed connections.

Do not service alone. Do not perform internal service or adjustments of this product unless another person capable of rendering first aid and resuscitation is present.

Disconnect power. To avoid electric shock, switch off the product power and disconnect the power cord from the mains power before removing any covers or panels, or opening the case for servicing.

Use care when servicing with power on. Dangerous voltages or currents may exist in this product. Disconnect power, remove battery (if applicable), and disconnect test leads before removing protective panels, soldering, or replacing components.

Verify safety after repair. Always recheck ground continuity and mains dielectric strength after performing a repair.

Terms in product manuals

These terms may appear in the product manuals:

WARNING. Warning statements identify conditions or practices that could result in injury or loss of life.

CAUTION. Caution statements identify conditions or practices that could result in damage to this product or other property.

Symbols and terms on the product

These terms may appear on the product:

- DANGER indicates an injury hazard immediately accessible as you read the marking.
- WARNING indicates an injury hazard not immediately accessible as you read the marking.
- CAUTION indicates a hazard to property including the product.



When this symbol is marked on the product, be sure to consult the manual to find out the nature of the potential hazards and any actions which have to be taken to avoid them. (This symbol may also be used to refer the user to ratings in the manual.)

The following symbol(s) may appear on the product:



CAUTION
Refer to Manual



Protective Ground
(Earth) Terminal



Functional
Earth Terminal



Standby

Operating requirements

Environment requirements

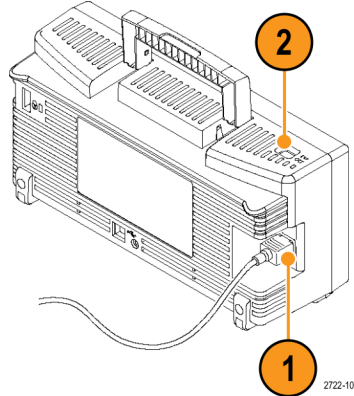
Characteristic	Description
Operating temperature	0 °C to +50 °C, with 5 °C/minute maximum gradient, noncondensing (NC), up to 3000 meter altitude
Operating humidity	5% to 95% relative humidity (% RH) up to +30 °C 5% to 60% RH above +30 °C up to +50 °C, NC
Operating altitude	Up to 3000 meters (9842 feet)

Power requirements

Characteristic	Description
Power source voltage	100 V _{AC} – 240 V _{AC} ±10% RMS, single phase
Power source frequency	50/60 Hz over entire source voltage range 400 Hz (360 Hz to 440 Hz) for 115 V _{AC} (100 V _{AC} – 132 V _{AC}) RMS source voltage range
Power consumption	All models: 80 W maximum

Installation

Power on the unit



1. Power the unit on by connecting the supplied power cord to the rear-panel power connector.
2. Push the power button on the top of the oscilloscope to turn the oscilloscope on.

To power the oscilloscope off, push the power button on the top of the oscilloscope again. To remove power completely, disconnect the power cord from the rear-panel of the oscilloscope.

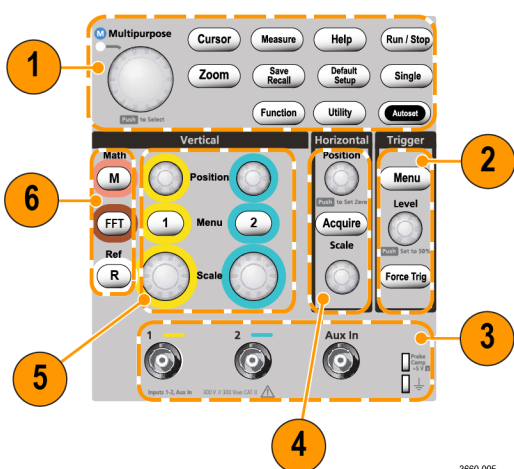
Controls and connections

Read the *TBS1000X Series User Manual* for detailed information about all product controls, the user interface, how to take measurements, and warranty information. The manual is available in the languages listed below.

Language	Tektronix part number
Simplified Chinese	077-1698-00


Front panel

NOTE. Some control and connector positions are different between the two- and four-channel models, but their functions are the same.



1. Use the **Menu and control** buttons to select menu items, set values, display and move cursors, magnify a section of the waveform and access the embedded help.

2. Use the **Trigger** controls to set the trigger type, source channel, trigger signal coupling, the signal's trigger slope (positive or negative), trigger level, and more.
3. Use the two **probe input** BNC connectors to connect the oscilloscope to the signal. The maximum measurement input voltage is 300 V_{RMS}, CAT II.

A  symbol next to a measurement readout indicates a signal over range condition (clipping). This is often caused by waveforms that extend above or below the screen edge. To get an accurate measurement readout, adjust the vertical scale and/or position knob to show the entire waveform on the screen.

Use the **Aux In** BNC input to connect an external trigger source.

Use the **probe compensation** output and chassis reference to electrically match a voltage probe to the oscilloscope input circuit.

4. Use the **Horizontal** controls to position a channel or math waveform horizontally, set the acquisition mode, set the waveform record length, set the horizontal scale (time per major horizontal graticule and samples/second), and more.
5. Use the **Vertical** controls to select a waveform to display, open menus to set signal coupling, bandwidth, probe attenuation and type; move the waveform up or down on the screen; set the vertical scale factor (volts per vertical graticule division); and more.
6. Use the **Resource** controls to display waveform math operations, display FFT spectrum waveforms, or to display reference memory waveforms.

USB ports

Front panel. Use the front-panel USB port to connect a flash drive for file storage and retrieval, saving and recalling instrument setups, and to perform firmware upgrades.

Rear panel. Use the USB Device port to connect to a PC for remote control using USBTMC protocol.

Cleaning

Use a dry, soft cotton cloth to clean the outside of the unit. Do not use any liquid cleaning agents or chemicals that could damage the case, controls, screen, markings or labels, or possibly infiltrate the case.

Compliance

This section lists the EMC (electromagnetic compliance), safety, and environmental standards with which the instrument complies. This product is intended for use by professional and trained personnel only; it is not designed for use in households or by children.

Questions about the following compliance information may be directed to the following address:

Tektronix, Inc.
PO Box 500, MS 19-045
Beaverton, OR 97077, USA
www.tek.com

EMC compliance

EU EMC Directive

Meets intent of Directive 2014/30/EC for Electromagnetic Compatibility. Compliance was demonstrated to the following specifications as listed in the Official Journal of the European Communities:

EN 61326-1, EN 61326-2-1. EMC requirements for electrical equipment for measurement, control, and laboratory use. ^{1 2 3 4 5}

- CISPR 11 (Group 1, Class A)
- IEC 61000-4-2; IEC 61000-4-3; IEC 61000-4-4; IEC 61000-4-5; IEC 61000-4-6; IEC 61000-4-11
- EN 61000-3-2:A1/A2; EN 61000-3-3

- 1 This product is intended for use in nonresidential areas only. Use in residential areas may cause electromagnetic interference.
- 2 Emissions that exceed the levels required by this standard may occur when this equipment is connected to a test object.
- 3 Equipment may not meet the immunity requirements of applicable listed standards when test leads and/or test probes are connected.
- 4 For compliance with the EMC standards listed here, high quality shielded interface cables that incorporate low impedance connection between the cable shield and the connector shell should be used.
- 5 10 mV/division to 1 V/division: ≤1.0 division waveform displacement or ≤2.0 division increase in peak-to-peak noise is allowed when the instrument is subjected to fields and signals as defined in the IEC 61000-4-3 and IEC 61000-4-6 tests.

Australia / New Zealand declaration of conformity – EMC

Complies with the EMC provision of the Radiocommunications Act per the following standard, in accordance with ACMA:

- CISPR 11. Radiated and Conducted Emissions, Group 1, Class A, in accordance with EN 61326-1 and EN 61326-2-1.

FCC – EMC

Emissions are within the limits of FCC 47 CFR, Part 15, Subpart B for Class A equipment.

Safety compliance

This section lists the safety standards with which the product complies and other safety compliance information.

EU Low Voltage Directive

Compliance was demonstrated to the following specification as listed in the Official Journal of the European Union:

Low Voltage Directive 2014/35/EU.

- EN 61010-1; EN 61010-2-030

U.S. nationally recognized testing laboratory listing

- UL 61010-1; UL 61010-2-030

Canadian certification

- CAN/CSA-C22.2 No. 61010-1; CAN/CSA-C22.2 No. 61010-2-030

Additional compliances

- IEC 61010-1; IEC 61010-2-030

Equipment type

Test and measuring equipment.

Safety class

Class 1 - grounded product.

Pollution degree rating

Pollution Degree 2 (as defined in IEC 61010-1). Rated for indoor, dry location use only.

Measurement and overvoltage category descriptions

Measurement terminals on this product may be rated for measuring mains voltages from one or more of the following categories (see specific ratings marked on the product and in the manual).

Category II. Circuits directly connected to the building wiring at utilization points (socket outlets and similar points).

NOTE. Only measurement circuits have a measurement category rating. Only mains power supply circuits have an overvoltage category rating. Other circuits within the product do not have either rating.

Mains overvoltage category rating

Overvoltage category II (as defined in IEC 61010-1).

Environmental considerations

This section provides information about the environmental impact of the product.

Restriction of hazardous substances

Complies with RoHS2 Directive 2011/65/EU.

Product end-of-life handling

Observe the following guidelines when recycling an instrument or component:

Equipment recycling. Production of this equipment required the extraction and use of natural resources. The equipment may contain substances that could be harmful to the environment or human health if improperly handled at the product's end of life. To avoid release of such substances into the environment and to reduce the use of natural resources, we encourage you to recycle this product in an appropriate system that will ensure that most of the materials are reused or recycled appropriately.



This symbol indicates that this product complies with the applicable European Union requirements according to Directives 2012/19/EU and 2006/66/EC on waste electrical and electronic equipment (WEEE) and batteries. For information about recycling options, check the Tektronix Web site (www.tek.com/productrecycling).

Battery recycling. This product contains a small installed lithium metal button cell. Please properly dispose of or recycle the cell at its end of life according to local government regulations.

Perchlorate materials. This product contains one or more type CR lithium batteries. According to the state of California, lithium batteries are classified as perchlorate materials and require special handling. See www.dtsc.ca.gov/hazardouswaste/perchlorate for additional information.

TBS1000X 系列示波器 安全和安装

说明



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Tektronix 联系信息

Tektronix, Inc., 14150 SW Karl Braun Drive, P.O. Box 500, Beaverton, OR 97077, USA

有关产品信息、销售、服务和技术支持：
在北美地区，请拨打 1-800-833-9200。
其他地区用户请访问 www.tek.com 查找当地的联系信息。

重要安全信息

本手册包含用户必须遵守的信息和警告，以确保安全操作并保证产品安全。为保证安全地对本产品进行维修，本部分结尾还提供其他信息。

常规安全概要

请务必按照规定使用产品。详细阅读下列安全性预防措施，以避免人身伤害，并防止损坏本产品或与本产品连接的任何产品。认真阅读所有说明。保留这些说明以备将来参考。

遵守当地和国家安全法令。

为了保证正确安全地操作产品，除本手册规定的安全性预防措施外，您还必须遵守普遍公认的安全规程。

产品仅限经过培训的人员使用。

只有了解相关危险的合格人员才能进行开盖维修、保养或调整。

使用前，请务必检查产品是否来自已知来源，以确保正确操作。

本产品不适用于检测危险电压。

如果存在危险带电导体暴露，请使用个人防护装备以防电击和电弧爆炸伤害。

使用本产品时，您可能需要使用一套大型系统的其他部件。有关操作这类系统的警告和注意事项，请阅读其他部件手册的安全性部分。

将本设备集成到某系统时，该系统的安全性由系统的组装者负责。

避免火灾或人身伤害

使用合适的电源线：只能使用本产品专用并经所在国家/地区认证的电源线。

不要使用为其他产品提供的电源线。

将产品接地：本产品通过电源线的接地导线接地。为避免电击，必须将接地导线与大地相连。在对本产品的输入端或输出端进行连接之前，请务必将本产品正确接地。

不要切断电源线的接地连接。

使用以地为参考的示波器：使用 TBS1102X 示波器时，请勿使 TPP 系列探头的基准导线浮地。参考引线必须连接到大地电势 (0 V)。

断开电源：电源线可以使产品断开电源。请参阅有关位置的说明。请勿将设备放在难以接近电源线的位置；必须保证用户可以随时操作电源线，以在需要时快速断开连接。

正确连接并正确断开连接：探头或测试导线连接到电压源时请勿插拔。

仅使用产品附带的或 Tektronix 指明适合产品使用的绝缘电压探头、测试导线和适配器。

遵守所有终端额定值：为避免火灾或电击危险，请遵守产品上所有的额定值和标记说明。在连接产品之前，请先查看产品手册，了解额定值的详细信息。请勿超过产品、探头或附件中各器件中额定值最低者的测量类别 (CAT) 额定值和电压或电流额定值。在使用 1:1 测试导线时要小心，因为探头端部电压会直接传输到产品上。

对任何终端（包括公共终端）施加的电势不要超过该终端的最大额定值。

请勿将公共终端的电压浮动到该终端的额定电压以上。

请勿开盖操作：切勿在外盖或面板拆除或机壳打开的状态下操作本产品。可能有危险电压暴露。

远离外露电路：电源接通后请勿接触外露的接头和器件。

怀疑产品出现故障时，请勿进行操作：如果怀疑本产品已损坏，请让合格的维修人员进行检查。

产品损坏后请弃用。如果损坏或者工作不正常，请勿使用。如果怀疑产品存在安全问题，请关闭产品并断开电源线。在产品上做清晰标记以防其再被使用。

在使用之前，请检查电压探头、测试导线和附件是否有机械损坏，如损坏则予以更换。如果探头或测试导线损坏、金属外露或出现磨损迹象，请勿使用。

在使用之前请先检查产品外表面。查看是否有裂纹或缺失部件。

仅使用规定的替换部件。

请勿在潮湿环境下操作：如果产品从冷环境移动到暖环境中，注意可能会发生凝结现象。

切勿在易燃易爆的环境下操作：

请保持产品表面清洁干燥：清洁本产品前，请移除输入信号。

请适当通风：为确保正常散热，请不要在仪器两侧和后面堆放物品。所提供的狭槽和开口用于通风，不得遮盖或阻挡。请勿将物体放进任何开口。

提供安全的工作环境：始终将产品放在方便查看显示器和指示器的位置。避免对按钮盘使用不当或长时间使用。请确保工作区符合适用的人体工程学标准。

探头和测试导线

连接探头或测试导线之前，请将电源线从电源连接器连接到正确接地的电源插座。

请将手指放在探头上手指防护装置的后面。

拔掉所有不用的探头、测试导线和附件。

仅使用正确的测量类别 (CAT)、电压、温度、海拔高度和电流额定的探头、测试导线和适配器进行测量。

小心高电压：了解您正在使用的探头的额定电压，请不要超出这些额定值。重要的是知道并理解两个额定值：

- 探头端部到探头参考导线的最大测量电压
- 探头参考导线到大地的最大浮动电压

这两个额定电压取决于探头和您的应用。请参阅手册的“技术规格”部分了解更多详情。

警告：为防止电击，请不要超出示波器输入 BNC 连接器、探头端部或探头参考导线的最大测量电压或最大浮动电压。

正确连接并正确断开连接：将探头连接到被测电路之前，先将探头输出端连接到测量产品。在连接探头输入端之前，请先将探头参考导线与被测电路连接。将探头与测量产品断开之前，请先将探头输入端及探头参考导线与被测电路断开。

正确连接并正确断开连接：连接电流探头或断开电流探头的连接之前请先将被测电路断电。

只能将探头参考导线连接到大地。

不要将电流探头连接到电压超过电流探头额定电压的任何导线。

检查探头和附件：在每次使用之前，请检查探头和附件是否损坏（探头本体、附件、电缆外壳等的割裂、破损、缺陷）。如果损坏，请勿使用。

维修安全概要

维修安全概要部分包含对产品安全执行维修所需的其他信息。只有合格人员才能执行维修程序。在执行任何维修程序之前，请阅读此维修安全概要和规安全概要。

避免电击：接通电源时，请勿触摸外露的连接。

不要单独维修：除非现场有他人可以提供急救和复苏措施，否则请勿对本产品进行内部维修或调整。

断开电源：为避免电击，请先关闭仪器电源并断开与市电电源的电源线，然后再拆下外盖或面板，或者打开机壳以进行维修。

带电维修时要格外小心：本产品中可能存在危险电压或电流。在卸下保护面板，进行焊接或更换器件之前，请先断开电源，卸下电池（如适用）并断开测试导线。

维修之后验证安全性：请务必在维修后重新检查接地连续性和市电介电强度。

产品手册中的术语

本产品手册中可能出现以下术语：

警告：“警告”声明指出可能会造成人身伤害或危及生命安全的情况或操作。

注意：“注意”声明指出可能对本产品或其他财产造成损坏的情况或操作。

产品上的符号和术语

产品上可能出现以下术语：

- 看到“危险”标记时表示可直接导致人身伤害的危险。
- 看到“警告”标记时表示不会直接导致人身伤害的危险。
- 看到“注意”标记时表示会对本产品在内的财产造成损害的危险。



产品上标示此符号时，请确保查阅手册，以了解潜在危险的类别以及避免这些危险需采取的措施。（此符号还可能用于指引用户参阅手册中的额定值信息。）

产品上可能出现以下符号：



注意
请参阅手册



保护性接地端



功能
接地端子



待机

操作要求

环境要求

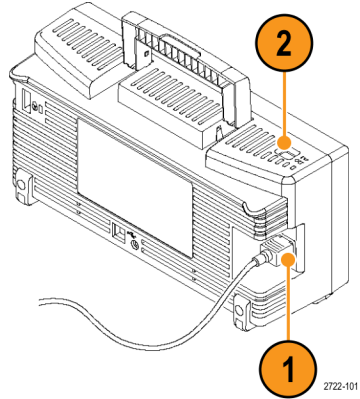
特性	说明
工作温度	0 °C 至 +50 °C，最大梯度 5° C/分钟，无凝结 (NC)，最高海拔 3000 米
工作湿度	在不超过 +30 °C 时，相对湿度 (%RH) 5% 至 95% 在 +30 °C 至 +50 °C 时，相对湿度为 5% 到 60% RH
工作海拔	最高 3,000 米 (9,842 英尺)

电源要求

特性	说明
电源电压	100 V _{AC} - 240 V _{AC} ±10% RMS，单相
电源频率	在整个源电压范围内 50/60 Hz 115 V _{AC} (100 V _{AC} - 132 V _{AC}) RMS 源电压范围为 400 Hz (360 Hz - 440 Hz)
功耗	所有型号：最高 80 W

安装

接通示波器的电源。



1. 将所提供的电源线连接至后面板的电源接头，即可接通示波器的电源。

2. 按下示波器顶部的电源按钮即可打开示波器的电源。

若要关闭示波器，再次按下示波器顶部的电源按钮即可。如果要完全切断电源，请从示波器后面板断开电源线。

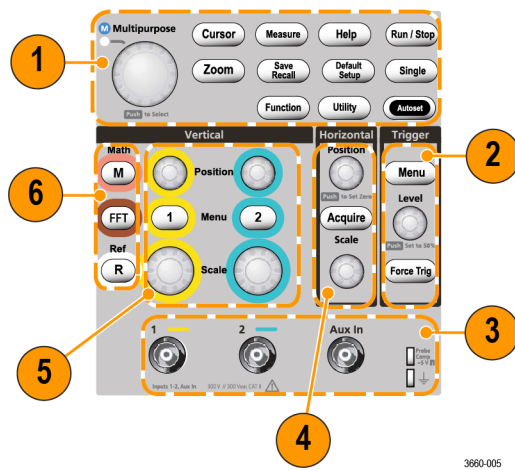
控件和连接

阅读 TBS1000X 系列用户手册，了解关于所有产品控件、用户界面、测量方式和质保信息的详细信息。手册提供以下语言版本。

语言	泰克部件编号
简体中文	077-1698-00

前面板

说明：一些控件和连接器在二通道型号和四通道型号上的位置不同，但是其功能是相同的。



1. 使用**菜单和控制**按钮选择菜单项、设置值、显示和移动光标、放大波形的一部分并访问嵌入的帮助。
2. 使用**触发**控件可选择触发类型、源通道、触发信号耦合、信号的触发斜率（正或负）、触发电平等。
3. 使用两个**探头输入** BNC 连接器将示波器连接到信号。最大测量输入电压为 300 V_{RMS}，CAT II。
⚠️ 测量读数旁边的符号表示信号超出量程（限幅）。这通常由延伸到屏幕边缘上方或下方的波形导致。若要获得准确的测量读数，请调整垂直标度和/或位置旋钮，以在屏幕上显示整个波形。
使用**辅助输入** BNC 连接外部触发源。
使用**探头补偿**输出和底盘参考，将电压探头与示波器输入电路进行电气匹配。
4. 使用**水平**控件水平定位通道或数学波形，设置采集模式，设置波形记录长度，设置水平刻度（每个主要水平分划和采样/秒的时间）等等。
5. 使用**垂直**控件可选择要显示的波形，打开菜单以设置信号耦合、带宽、探头衰减和类型；在屏幕上向上或向下移动波形；设置垂直标度系数（伏特/垂直刻度格）等等。
6. 使用**资源**控件显示波形数学运算、显示 FFT 频谱波形或显示参考存储器波形。

USB 端口

前面板：使用前面板 USB 端口连接用于文件存储和检索、保存和调用仪器设置的 U 盘，并执行固件升级。

后面板：使用 USB 设备端口连接到 PC 以使用 USBTMC 协议进行远程控制。

清洁

使用干燥柔软的棉布清洁设备外部。请勿使用任何可能损坏外壳、控件、屏幕、标记或标签或者可能渗入外壳的液体清洁剂或化学品。

一致性

此部分列出仪器遵循的 EMC（电磁兼容性）、安全和环境标准。本产品仅供专业人员和受过培训的人员使用；不得在家中或供儿童使用。

如果对以下合规性信息存在疑问，可以联系以下地址：

Tektronix, Inc.
PO Box 500, MS 19 - 045
Beaverton, OR 97077, USA
www.tek.com

EMC 合规性

EU EMC 指令

符合指令 2014/30/EC 有关电磁兼容性的要求。已证明符合《欧洲共同体公报》中所列的以下技术规格：

EN 61326-1、EN 61326-2-1: 测量、控制和实验室用电气设备的 EMC 要求。1 2 3 4 5

- CISPR 11（组 1，A 类）
 - IEC 61000-4-2；IEC 61000-4-3；IEC 61000-4-4；IEC 61000-4-5；IEC 61000-4-6；IEC 61000-4-11
 - EN 61000-3-2:A1/A2；EN 61000-3-3
- 1 本产品仅在非居民区内使用。在居民区内使用可能造成电磁干扰。
 - 2 当该设备与测试对象连接时，产生的辐射可能超过此标准要求的级别。
 - 3 测试导线和/或测试探头连接后，设备可能无法满足所列适用标准的抗干扰能力要求。
 - 4 为确保符合上面列出的 EMC 标准，应使用在电缆护套和连接器外壳间包含低阻抗连接的高质量屏蔽接口电缆。
 - 5 10 mV/格至 1 V/格：当仪器受到 IEC 61000-4-3 和 IEC 61000-4-6 测试所定义的电磁场和信号的影响时，允许 ≤1.0 格波形位移或峰-峰值噪声增加 ≤2.0 格。

澳大利亚/新西兰一致性声明 - EMC

根据 ACMA，符合 Radiocommunications Act（《无线电通信法》）有关 EMC 规定的以下标准：

- CISPR 11。放射和传导发射量，组 1，A 类，依照 EN 61326-1 和 EN 61326-2-1。

FCC - EMC

辐射量符合 FCC 47 CFR 第 15 部分 B 子部分对 A 类设备的限制要求。

安全合规性

本部分列出了产品遵循的安全标准及其他安全合规性信息。

欧盟低压指令

经证明符合 Official Journal of the European Union（《欧盟官方公报》）中所列的以下技术规格：

低电压指令 2014/35/EU。

- EN 61010-1；EN 61010-2-030

美国国家认可的测试实验室列表

- UL 61010-1；UL 61010-2-030

加拿大认证

- CAN/CSA-C22.2 No. 61010-1；CAN/CSA-C22.2 No. 61010-2-030

其他合规性

- IEC 61010-1；IEC 61010-2-030

设备类型

测试和测量设备。

安全级别

1 级 - 接地产品。

污染度评级

污染度 2（如 IEC 61010-1 中定义）。仅适合在室内的干燥场所使用。

测量和过压类别说明

本产品上的测量端子可能适合测量以下一种或多类别的市电电压（请参阅产品和手册中标示的具体额定值）。

类别 II。电路使用点（插座和类似点处）直接连接到建筑物布线。

说明：仅测量电路具有测量类别额定值。仅市电电源电路具有过压类别额定值。产品中的其他电路不具有其中任何一种额定值。

市电过压类别额定值

过压类别 II（如 IEC 61010-1 中的定义）。

环境注意事项

本部分提供产品对环境的影响的相关信息。

有害物质限制

符合 RoHS2 指令 2011/65/EU。

产品报废处理

回收仪器或器件时，请遵守下面的规程：

设备回收：生产本设备需要提取和使用自然资源。如果对本产品的报废处理不当，则该设备中包含的某些物质可能会对环境或人体健康有害。为避免将有害物质释放到环境中，并减少对自然资源的使用，建议采用适当的方法回收本产品，以确保大部分材料可以得到恰当的重复使用或回收。



此符号表示该产品符合欧盟有关废旧电子和电气设备 (WEEE) 以及电池的 2012/19/EU 和 2006/66/EC 号指令所规定的相关要求。有关回收选项的信息，请登录 Tektronix 网站 (www.tek.com/productrecycling) 查看。

电池回收：本产品装有小型锂金属纽扣电池。如果电量用尽，请根据当地政府法规正确处理或回收此电池。

高氯酸盐材料：此产品包含一个或多个 CR 型锂电池。按照加州规定，锂电池被归类为高氯酸盐材料，需要特殊处理。详情参阅 www.dtsc.ca.gov/hazardouswaste/perchlorate。