

AFG1000 Series Arbitrary/Function Generator Safety and Compliance

Instructions



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071-3434-00

Tektronix

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.tektronix.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.

Use proper voltage setting. Before applying power, make sure that the line selector is in the proper position for the source being used.

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, make sure that the product is properly grounded.

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 operate the power cord; it must remain accessible to the user at all times to allow for quick disconnection if needed.

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 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.

Use proper fuse. Use only the fuse type and rating specified for this product.

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. Refer to the installation instructions in the manual for details on installing the product so it has proper ventilation.

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 keyboards, pointers, and button pads. Improper or prolonged keyboard or pointer use may result in serious injury.

Be sure your work area meets applicable ergonomic standards. Consult with an ergonomics professional to avoid stress injuries. Use care when lifting and carrying the product.

Use only the Tektronix rackmount hardware specified for this product.

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 this manual

These terms may appear in this manual:


 **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.

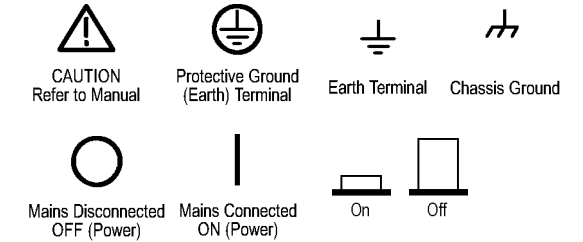
Symbols and terms on the product

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:



Compliance information

This section lists the EMC (electromagnetic compliance), safety, and environmental standards with which the instrument complies.

EMC compliance

EC Declaration of Conformity – EMC

Meets intent of Directive 2004/108/EC for Electromagnetic Compatibility. Compliance was demonstrated to the following specifications as listed in the Official Journal of the European Communities:

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

- CISPR 11. Radiated and conducted emissions, Group 1, Class A
- IEC 61000-4-2. Electrostatic discharge immunity
- IEC 61000-4-3. RF electromagnetic field immunity
- IEC 61000-4-4. Electrical fast transient/burst immunity
- IEC 61000-4-5. Power line surge immunity
- IEC 61000-4-6. Conducted RF immunity
- IEC 61000-4-11. Voltage dips and interruptions immunity

EN 61000-3-2. AC power line harmonic emissions

EN 61000-3-3. Voltage changes, fluctuations, and flicker

European contact.

Tektronix UK, Ltd.
Western Peninsula
Western Road
Bracknell, RG12 1RF
United Kingdom

¹ This product is intended for use in nonresidential areas only. Use in residential areas may cause electromagnetic interference.

² Emissions which exceed the levels required by this standard may occur when this equipment is connected to a test object.

³ To ensure compliance with the EMC standards listed here, high quality shielded interface cables should be used.

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.

Australia/New Zealand contact.

Baker & McKenzie
Level 27, AMP Centre
50 Bridge Street
Sydney NSW 2000
Australia

Safety compliance

EU Declaration of Conformity – Low Voltage

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

Low Voltage Directive 2006/95/EC.

- EN 61010-1. Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General Requirements.

U.S. nationally recognized testing laboratory listing

- UL 61010-1. Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use – Part 1: General Requirements.

Canadian certification

- CAN/CSA-C22.2 No. 61010-1. Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use – Part 1: General Requirements.

Additional compliances

- IEC 61010-1. Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General Requirements.

Equipment type

Test and measuring equipment.

Safety class

Class 1 – grounded product.

Pollution degree description

A measure of the contaminants that could occur in the environment around and within a product. Typically the internal environment inside a product is considered to be the same as the external. Products should be used only in the environment for which they are rated.

- Pollution Degree 1. No pollution or only dry, nonconductive pollution occurs. Products in this category are generally encapsulated, hermetically sealed, or located in clean rooms.
- Pollution Degree 2. Normally only dry, nonconductive pollution occurs. Occasionally a temporary conductivity that is caused by condensation must be expected. This location is a typical office/home environment. Temporary condensation occurs only when the product is out of service.
- Pollution Degree 3. Conductive pollution, or dry, nonconductive pollution that becomes conductive due to condensation. These are sheltered locations where neither temperature nor humidity is controlled. The area is protected from direct sunshine, rain, or direct wind.
- Pollution Degree 4. Pollution that generates persistent conductivity through conductive dust, rain, or snow. Typical outdoor locations.

Pollution degree rating

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

IP rating

IP20 (as defined in IEC 60529).

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).
- Category III. In the building wiring and distribution system.
- Category IV. At the source of the electrical supply to the building.

NOTE. Only mains power supply circuits have an overvoltage category rating. Only measurement circuits have a measurement 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

Refer to the Quick Start User Manual for information about the environmental impact of the product.

Operating overview

This document contains information for the following AFG1000 Series Arbitrary Function Generator products. Refer to the Quick Start User Manual and Specifications and Performance Verification Technical Reference for complete operating information and product specifications.

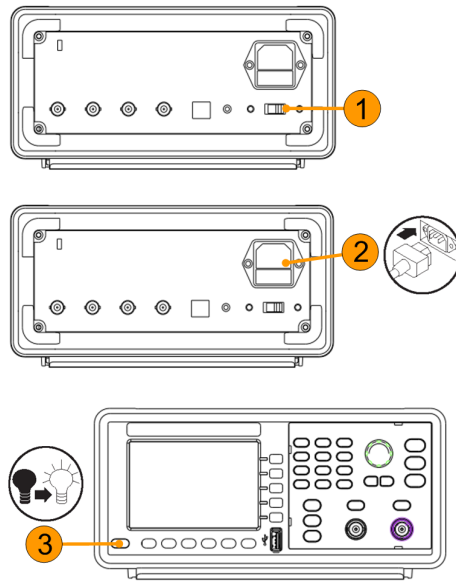
- AFG1022 Arbitrary Function Generator
- AFG1062 Arbitrary Function Generator

Power source

This generator operates from a single-phase power source with the neutral conductor at or near earth ground. It is intended for only ground-referenced measurements. A protective ground connection through the grounding conductor in the power cord is essential for safe operation.

Switch the line selector to the correct position ①. Power the unit on by connecting the supplied power cord to the rear-panel power connector ②. Push the power button ③ on the front of the instrument to turn it on. To power the unit off, push the power button on the front of the instrument again. To remove power completely, disconnect the power cord from the rear-panel of the instrument.

WARNING. To reduce the risk of fire and shock, ensure that the mains supply voltage fluctuations do not exceed 10% of the operating voltage range and the proper fuse is installed (refer to Quick Start User Manual for the steps of fuse replacement).



Power specifications and clearance requirements

| Characteristic | Description |
|------------------------------|--|
| Source voltage and frequency | 220 - 240 VAC, 100 - 120 VAC, 50/60 Hz, CAT II |
| Power consumption | |
| AFG1022 | Less than 28 W |
| AFG1062 | Less than 35 W |

Place the instrument on a cart or bench, observing the following clearance requirements. Before operating, ensure that the ambient temperature is between 0 °C to +40 °C (+32 °F to +104 °F).

- Sides: 50 mm (2 in)
- Rear: 50 mm (2 in)

CAUTION. To ensure proper cooling, keep both sides of the instrument clear of obstructions.

Instrument dimensions

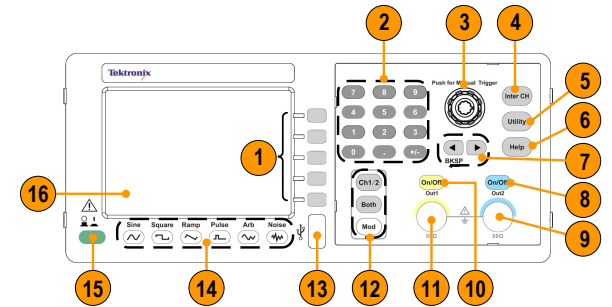
- Height: 111.16 mm (4.38 in)
- Width: 229.16 mm (9.02 in)
- Length: 306.36 mm (12.06 in), including rear boot

Environmental specifications

| Characteristic | Description |
|--------------------------------|---|
| Temperature range | |
| Operating | 0 °C to +40 °C |
| Non operating | -20°C to +60 °C |
| Humidity | |
| Operating (non condensing) | ≤ 80% |
| Non operating (non condensing) | <+40 °C: 5% to 90% ≥+40 °C to ≤+60 °C: 5% to 80% |
| Altitude | |
| Operating | Up to 3,000 meters (9,843 feet) |
| Non operating | Up to 12,000 meters (39,370 feet) |

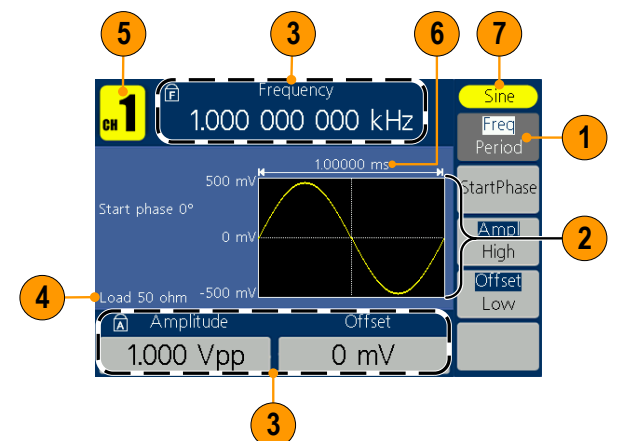
Front panel controls

The front panel is divided into easy-to-use functional areas.



1. Bezel menu buttons
2. Numeric keypad, including numeric, point, plus/minus sign
3. General purpose knob
4. Channel copy button
5. Utility button
6. Help button
7. Arrow buttons allow you to select a specific number on the display screen when you are changing amplitude, phase, frequency, or other such value
8. Channel 2 On/Off button
9. Channel 2 output connector
10. Channel 1 On/Off button
11. Channel 1 output connector
12. CH1/2: Switch channel on the screen
Both: Show the parameters of the two channels at the same time
Mod: Run modes, including continuous, modulation, sweep and burst
13. USB connector
14. Function button
15. Power button
16. Screen

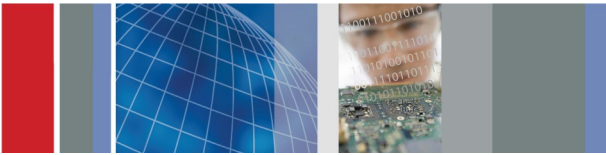
Screen interface



1. **Bezel menu:** When you push a front panel button, the instrument displays the corresponding menu on the right side of the screen. The menu shows the options that are available when you press the unlabeled bezel buttons directly to the right of the screen.
2. **Graph / waveform display area:** This part of the main display area shows the signal as a graph or waveform.
3. **Parameter display area:** This part of the main display area shows active parameters. **F** indicates Frequency Lock is on; **A** indicates Amplitude Lock is on.
4. **Message display area:** This part displays the load value.
5. **Message display area:** This part displays the current channel.
6. **Parameter display area:** This part displays the period.
7. **Message display area:** This part displays the type of the current signal or the current mode.

AFG1000系列任意波形函数发生器 合规性和安全

说明



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071-3434-00



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.tektronix.com 查找当地的联系信息。

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。

避免火灾或人身伤害

使用合适的电源线：只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。

遵循所有终端的额定值：为避免火灾或电击危险，请遵循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。

对任何终端（包括公共终端）施加的电压不要超过该终端的最大额定值。

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断开电源线的地方；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。

正确连接和断开：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、测试引线和适配器。

请勿将公共终端浮动到该终端的额定电压以上。

切勿开盖操作：外盖或面板打开时请勿操作本产品。

远离裸露电路：电源接通后请勿接触外露的接头和元件。

在怀疑存在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。

产品损坏时请勿使用。本产品损坏或运行错误时请不要使用。如果怀疑产品存在安全问题，请关闭产品并断开电源线。并做清晰标记以防其再被使用。

在使用之前，请检查电压探头、测试引线和附件是否有机械损坏，如损坏则予以更换。如果探头或测试引线损坏、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：请注意，如果装置从冷处移到暖处，则可能发生凝结情况。

请勿在易燃易爆的气体中操作：

保持适当的通风：有关如何安装产品使其保持适当通风的详细信息，请参阅安装说明。

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。

提供安全的作业环境：始终将产品放在方便查看显示器和指示器的地方。

抬起或搬运产品时请小心谨慎。

仅限使用为本产品指定的 Tektronix 机架安装硬件。

保持产品表面清洁干燥：在清洁本产品时，请先拔掉输入信号。根据工作条件要求经常检查仪器。请按照下述步骤清洁仪器的外表面：

- 用不起毛的抹布清除仪器外表的浮尘。请千万小心以避免刮擦到光洁的显示器滤光材料。
- 用湿的软布清洁仪器。要更彻底地清洁，可使用 75% 异丙醇的水溶剂。

注意：在外部清洁时避免湿气进入设备内部。使用的清洁溶剂量足以蘸湿软布或棉签即可。为避免损坏仪器，请勿将其置于雾气、液体或溶剂中；请勿使用任何研磨或化学清洁剂。

维修安全概要

“维修安全概要”部分包含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“常规安全概要”。

避免电击：接通电源时，请勿触摸外露的连接。

接通电源时，请勿触摸外露的连接：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。

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

维修后验证安全性：维修后，请务必重新检查接地线的连续性以及主机的绝缘强度。

本手册中的术语

本手册中可能使用以下术语：

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。

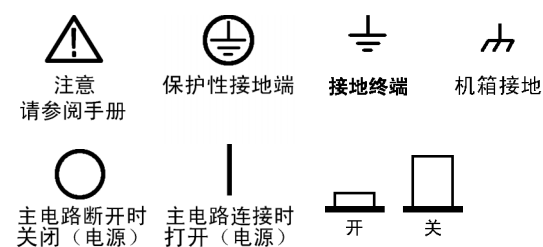
注意：“注意”声明指出可能对本产品或其他财产造成损坏的情况或操作。

产品上的符号和术语

产品上可能出现以下术语：

- DANGER（危险）表示您看到该标记时可直接导致人身伤害的危险。
- WARNING（警告）表示您看到该标记时不会直接导致人身伤害的危险。
- CAUTION（注意）表示可能会对本产品或其他财产带来的危险。

产品上可能出现以下符号：



符合性信息

此部分列出仪器符合的 EMC（电磁兼容性）、安全和环境标准。

EMC 符合性

EC 一致性声明 - EMC

符合 Directive 2004/108/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: 测量、控制和实验室用电气设备的 EMC 要求。 1 2 3

- CISPR 11. 放射和传导发射量，组 1，A 类
- IEC 61000-4-2. 静电放电抗扰性
- IEC 61000-4-3. 射频电磁场抗扰性
- IEC 61000-4-4. 电气快速瞬变/突发抗扰性
- IEC 61000-4-5. 电源线路浪涌抗扰性
- IEC 61000-4-6. 传导射频抗扰性
- IEC 61000-4-11. 电压骤降和中断抗扰性

EN 61000-3-2: 交流电源线谐波辐射

EN 61000-3-3: 电压变化、偏移和闪烁

欧洲联系方式：

Tektronix UK, Ltd.
Western Peninsula
Western Road
Bracknell, RG12 1RF
United Kingdom（英国）

- 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。
- 当该设备与测试对象连接时，可能产生超过此标准要求的辐射级别。
- 为确保符合上面列出的 EMC 标准，应使用高质量的屏蔽接口电缆。

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。

澳大利亚/新西兰联系方式：

Baker & McKenzie
Level 27, AMP Centre
50 Bridge Street
Sydney NSW 2000
澳大利亚

安全符合性

EU 符合性声明 - 低电压

经证明符合以下“欧盟官方公报”中所列的技术规格：

低电压指令 2006/95/EC。

- EN 61010-1. 对用于测量、控制和实验室的电气设备的安全性要求 - 第 1 部分：总体要求。

美国国家认可的测试实验室列表

- UL 61010-1. 对用于测量、控制和实验室的电气设备的安全性要求 - 第 1 部分：总体要求。

加拿大认证

- CAN/CSA-C22.2 No. 61010-1. 对用于测量、控制和实验室的电气设备的安全性要求 - 第 1 部分：总体要求。

其他符合性

- IEC 61010-1. 对用于测量、控制和实验室的电气设备的安全性要求 - 第 1 部分：总体要求。

设备类型

测试和测量设备。

安全级别

1 级 - 接地产品。

污染度说明

对产品周围和产品内部环境中可能出现的污染的一种量度。通常认为产品的内部环境与外部环境相同。产品只应该在其规定环境中使用。

- 污染度 1. 无污染或仅出现干燥、非导电性污染。此类别的产品通常进行了封装、密封或置于干净的房间中。
- 污染度 2. 通常只发生干燥、非导电性污染。偶尔会发生由凝结引起的临时传导。典型的办公室/家庭环境属于这种情况。只有当产品处于非使用状态时，才会发生临时凝结。
- 污染度 3. 导电性污染，或由于凝结会变成导电性污染的干燥、非导电性污染。此类场所为温度和湿度不受控制的建有遮盖设施的场所。此类区域不受阳光、雨水或自然风的直接侵害。
- 污染度 4. 通过导电性的尘埃、雨水或雪而产生永久导电性的污染。户外场所通常属于这种情况。

污染度额定值

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

IP 额定值

IP20（如 IEC 60529 中定义）。

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种类别的市电电压（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。
- 类别 III. 在建筑物布线和配电系统中。
- 类别 IV. 在建筑物电源处。

说明： 仅市电电源电路具有过压类别额定值。仅测量电路具有测量类别额定值。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

有关产品的环境影响, 请参阅快速入门用户手册。

操作概述

本文档含有以下AFG1000系列任意波形函数发生器的相关信息。有关完整的操作信息和产品规格, 请参阅快速入门用户手册和技术规格和性能验证技术参考。

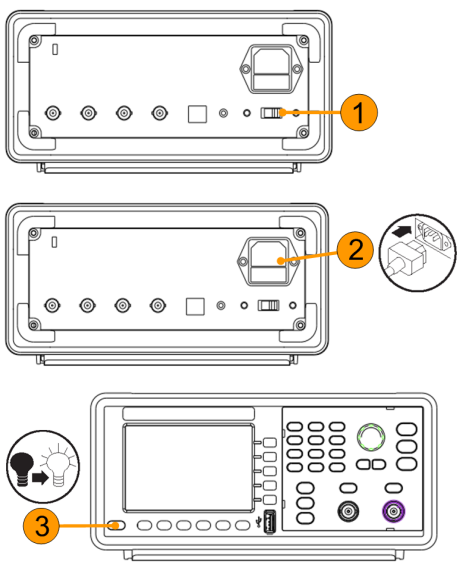
- AFG1022 任意波形函数发生器
- AFG1062 任意波形函数发生器

电源

本仪器使用带接地或近地中性导线的单相电源。该仪器的用途仅限于以地为参考的测量。通过电源线中的接地导线提供保护性接地对于安全操作十分重要。

将电源选择器拨到正确的位置①。将所提供的电源线连接至后面板的电源接头②, 即可接通仪器的电源。按下仪器前部的电源按钮③即可打开仪器的电源。若要关闭电源, 再次按下仪器前部的电源按钮。如果要完全切断电源, 请从仪器后面板断开电源线。

警告： 为减少起火和电击风险, 请确保市电电源的电压波动不超过工作电压范围的10%。请确保使用适当的保险丝(保险丝的更换步骤请参阅快速入门用户手册)。



电源规格和间距要求

| 特性 | 说明 |
|---------|--|
| 电源电压和频率 | 220 - 240 VAC, 100 - 120 VAC, 50/60 Hz, CAT II |
| 功耗 | |
| AFG1022 | 低于 28 W |
| AFG1062 | 低于 35 W |

将仪器放在手推车或工作台上时, 注意以下间距要求: 在操作之前, 请确保环境温度在 0°C 到 +40°C (+32°F 到+104°F) 之间。

- 侧面: 50 毫米
- 后部: 50 毫米

注意： 为确保正常散热, 请不要在仪器两侧堆放物品。

仪器尺寸

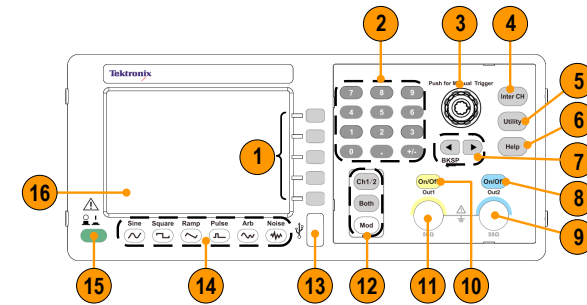
- 高度: 111.16 毫米
- 宽度: 229.16 毫米
- 长度: 306.36 毫米

环境规范

| 特性 | 说明 |
|-------------|--|
| 温度范围 | |
| 工作状态 | 0 °C 到 +40 °C |
| 非工作状态 | -20°C 到 +60 °C |
| 湿度 | |
| 工作状态 (无冷凝) | ≤ 80% |
| 非工作状态 (无冷凝) | <+40 °C: 5% 到 90% ≥+40 °C 到 ≤+60 °C: 5% 到 80% |
| 海拔高度 | |
| 工作状态 | 最高 3,000 米 |
| 非工作状态 | 最高 12,000 米 |

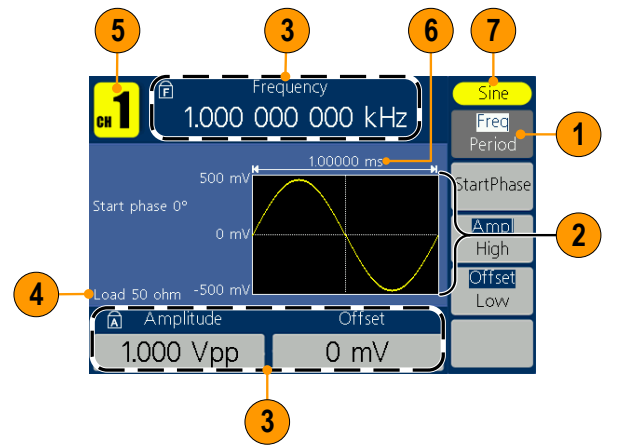
前面板控件

前面板分成几个易于操作的功能区。



1. 屏幕按钮
2. 数字键盘, 包括数字、小数点、正负号
3. 通用旋钮
4. 通道复制功能
5. 辅助功能
6. 帮助功能
7. 箭头按钮允许在更改幅度、相位、频率或其他此类数值时在显示屏上选择特定的数字
8. 通道2开/关按钮
9. 通道2输出连接器
10. 通道1开/关按钮
11. 通道1输出连接器
12. CH1/2: 屏幕上通道切换按钮
Both: 屏幕上同时显示2通道参数
Mod: 运行模式按钮, 显示连续、调制、扫频、突发脉冲串4种模式
13. USB 连接器
14. 功能按钮
15. 电源按钮
16. 屏幕

屏幕界面



1. **屏幕菜单：** 按下前面板按钮时, 仪器在屏幕右侧显示相应的菜单。该菜单显示直接按下屏幕右侧未标记的屏幕按钮时可用的选项。
2. **图形/波形显示区：** 该主显示区部分以图形或波形的形式显示信号。
3. **参数显示区：** 该主显示区部分显示活跃的参数。🔒 表示频率锁定打开; 🔒 表示幅度锁定打开。
4. **消息显示区：** 该区域中显示负载阻值。
5. **消息显示区：** 该区域中显示通道名称。
6. **参数显示区：** 该区域中显示周期值。
7. **消息显示区：** 该区域中显示当前信号类型或当前模式。