

TekSmartLab™ TBX3000A Installation and Safety Instructions



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TekSmartLab™ TBX3000A

Installation and Safety

Instructions

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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.

Warranty

Tektronix warrants that the product will be free from defects in materials and workmanship for a period of three (3) years from the date of original purchase from an authorized Tektronix distributor. If the product proves defective during this warranty period, Tektronix, at its option, either will repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product. Batteries are excluded from this warranty. Parts, modules and replacement products used by Tektronix for warranty work may be new or reconditioned to like new performance. All replaced parts, modules and products become the property of Tektronix.

In order to obtain service under this warranty, Customer must notify Tektronix of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. Customer shall be responsible for packaging and shipping the defective product to the service center designated by Tektronix, shipping charges prepaid, and with a copy of customer proof of purchase. Tektronix shall pay for the return of the product to Customer if the shipment is to a location within the country in which the Tektronix service center is located. Customer shall be responsible for paying all shipping charges, duties, taxes, and any other charges for products returned to any other locations.

This warranty shall not apply to any defect, failure or damage caused by improper use or improper or inadequate maintenance and care. Tektronix shall not be obligated to furnish service under this warranty a) to repair damage resulting from attempts by personnel other than Tektronix representatives to install, repair or service the product; b) to repair damage resulting from improper use or connection to incompatible equipment; c) to repair any damage or malfunction caused by the use of non-Tektronix supplies; or d) to service a product that has been modified or integrated with other products when the effect of such modification or integration increases the time or difficulty of servicing the product.

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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. (See page iv, *Service safety summary*.)

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.

This product is not intended for detection of hazardous voltages.

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, 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.

Use proper AC adapter. Use only the AC adapter specified for this 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.

The measuring terminals on this product are not rated for connection to mains or Category II, III, or IV circuits.

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.

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 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.

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.

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:



CAUTION
Refer to Manual

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 2006. EMC requirements for electrical equipment for measurement, control, and laboratory use.^{1 2 3}

- CISPR 11:2003. Radiated and conducted emissions, Group 1, Class A
- IEC 61000-4-2:2001. Electrostatic discharge immunity
- IEC 61000-4-3:2002. RF electromagnetic field immunity
- IEC 61000-4-4:2004. Electrical fast transient / burst immunity
- IEC 61000-4-5:2001. Power line surge immunity
- IEC 61000-4-6:2003. Conducted RF immunity
- IEC 61000-4-11:2004. Voltage dips and interruptions immunity

EN 61000-3-2:2006. AC power line harmonic emissions

EN 61000-3-3:1995. 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 For 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 11:2003. Radiated and Conducted Emissions, Group 1, Class A, in accordance with EN 61326-1:2006.

Australia / New Zealand contact.

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

Safety compliance

This section lists other safety compliance information.

Equipment type

Test and measuring equipment.

Pollution degree descriptions

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.

Environmental considerations

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

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 2002/96/EC and 2006/66/EC on waste electrical and electronic equipment (WEEE) and batteries. For information about recycling options, check the Support/Service section of the Tektronix Web site (www.tektronix.com).

Restriction of hazardous substances

This product is classified as an industrial monitoring and control instrument accessory, and is not required to comply with the substance restrictions of the recast RoHS Directive 2011/65/EU until July 22, 2017.

Get acquainted with the TBX3000A

This manual provides basic information about the inputs and outputs of the TBX3000A and describes how to initially set up and configure the instrument. For more information about the TBX3000A, visit the Tektronix website at www.tektronix.com to download the latest user manual and find out more about how to use your new product.

Operating requirements

Power consumption Maximum 15W

Main features

The TBX3000A is used to connect Tektronix and Keithley products: oscilloscopes, signal generators, digital multimeters, and power supplies, seamlessly into a networked lab environment.

- It is equipped with USB 2.0 ports and RJ45 10/100Mbps Ethernet port.
- It can be connected to WIFI after installing a USB WIFI dongle.
- It is powered by a DC power adaptor (5V/3A).

Inputs, outputs, and indicators

Side connectors

This image shows one side of the TBX3000A.

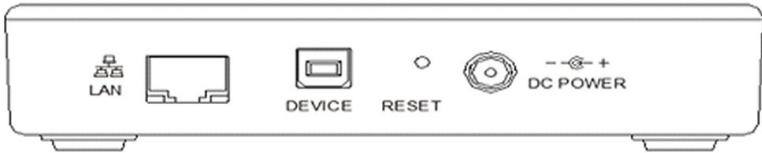


Figure 1: Side view of the TBX3000A

The connectors found on this side include (from left to right in the image):

- Ethernet LAN port: Use this connection to plug the TBX3000A into your network.
- USB device port: Used by the manufacturer only.
- Reset button: Restores default settings (including password and IP parameters) for the instrument. To restore the instrument to default settings, press this button and hold down to 5 seconds. The SYS indicator will blink rapidly for 5 seconds.
- DC power socket: Plug the DC power supply for the TBX3000A to this socket.

Rear side connectors

The USB cable connectors are on the back side of the TBX3000A. There are six USB 2.0 ports. You can connect the TBX3000A to instruments using standard USB cable.

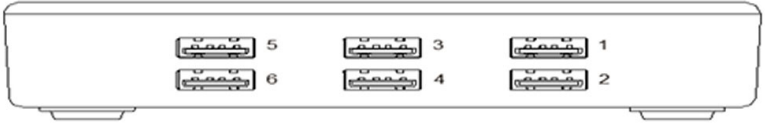


Figure 2: Rear view of the TBX3000A

Top indicators

The top side of the TBX3000A includes system status and WIFI indicators.



Figure 3: Top view of the TBX3000A

- USB indicators (1 through 6, left to right). If an indicator is on or blinking, it means an instrument is connected to TBX3000A through the corresponding USB port.
- WIFI indicator:
 - If it's not on, it means the USB WIFI dongle is not installed.
 - When blinking it indicates:
 - One blink at a time means the USB WIFI dongle is installed, but TBX3000A is not connected to the WIFI.

- Two blinks at a time means the USB WIFI dongle is installed, and TBX3000A is connected to the WIFI.
- System indicator (SYS):
 - If it blinks rhythmically, it means the power is on and the system is functioning.
 - If it's not on, it means the power is not on or the system is malfunctioning.
 - If it blinks un-rhythmically, it means the firmware is upgrading.

Bottom connector

Plug in a USB WIFI dongle like the NETGEAR WNA1000M.

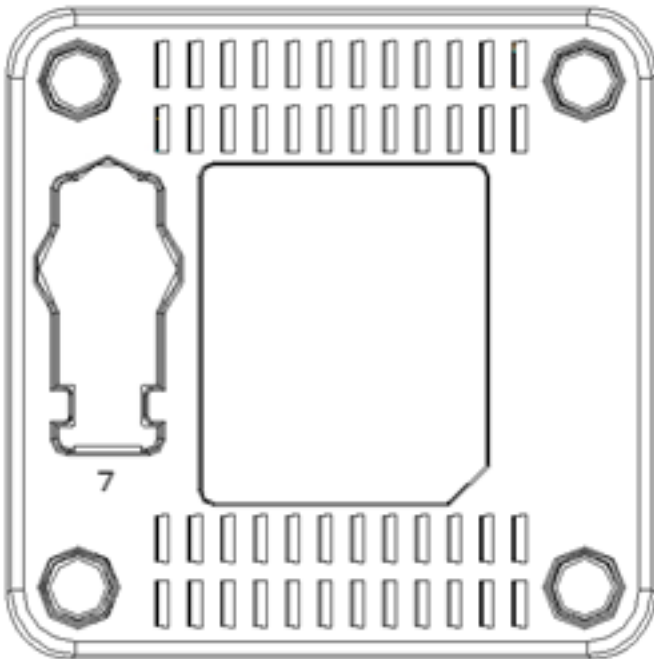


Figure 4: Bottom view of the TBX3000A

Configure the TBX3000A

When the TBX3000A is connected to the network, you can configure instrument parameters. The default IP address for the instrument is 192.168.1.101. Enter the default address into a web browser, press Enter, and the welcome page shown in Figure 5 is displayed.

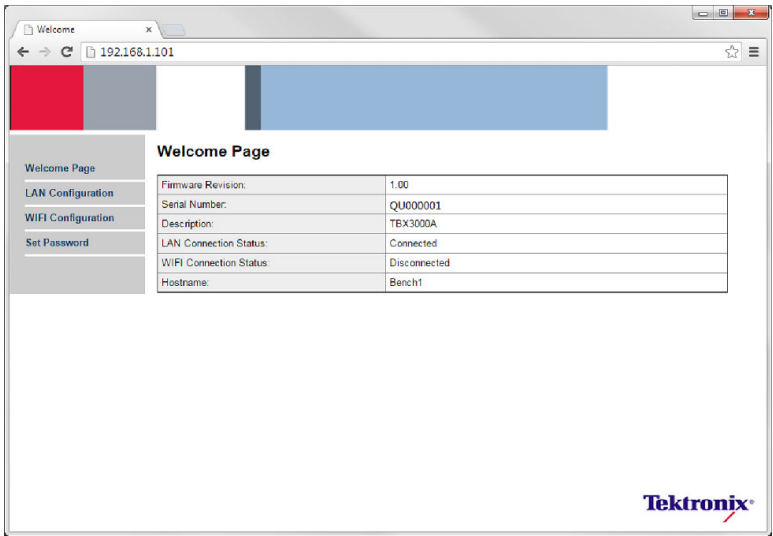


Figure 5: Welcome page for the TBX3000A configuration

The Welcome page shows the firmware version, serial number, LAN connection status, WIFI connection status, and the hostname of the TBX3000A.

LAN configuration

Click **LAN Configuration** in the navigation bar on the left to show the Lan Configuration page.

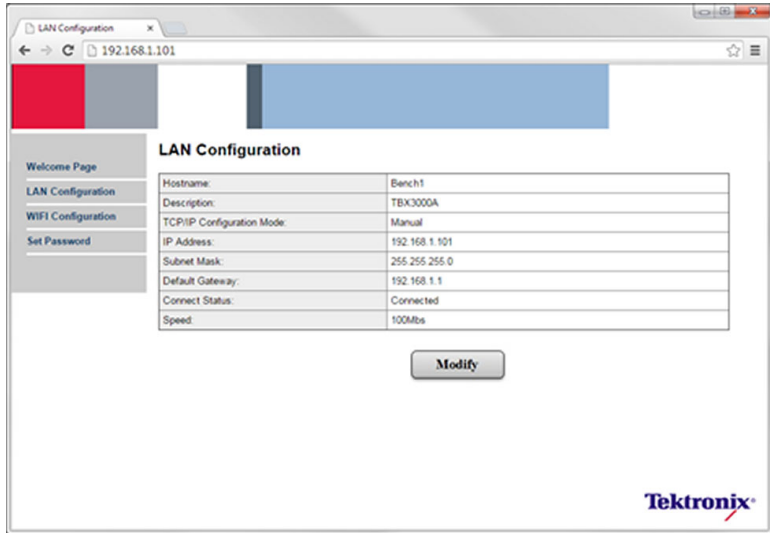


Figure 6: LAN configuration page

Click **Modify** to configure the LAN parameters.

The default values of the parameters are shown below:

Host name	Bench1
TCP/IP Configuration Mode	Manual
IP Address	192.168.1.101
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1

WIFI configuration

Click **WIFI Configuration** in the navigation bar on the left to show the WIFI Configuration page.

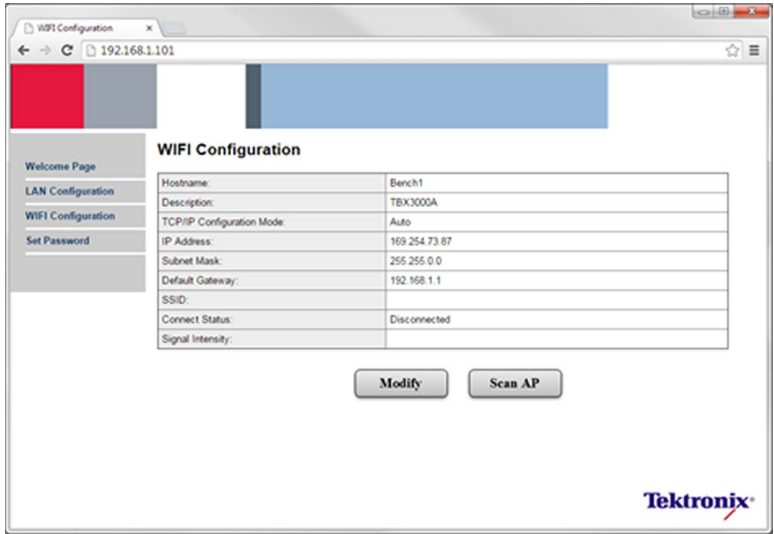


Figure 7: WIFI configuration page

Click **Modify** to configure WIFI network parameters.

Click **Scan AP** to search for the SSID of the WIFI network.

NOTE. *The TBX3000A will connect to the WIFI network, only after the USB WIFI dongle is installed on the instrument.*

Set password

Click Set Password in the navigation bar on the left to change the password for the instrument.

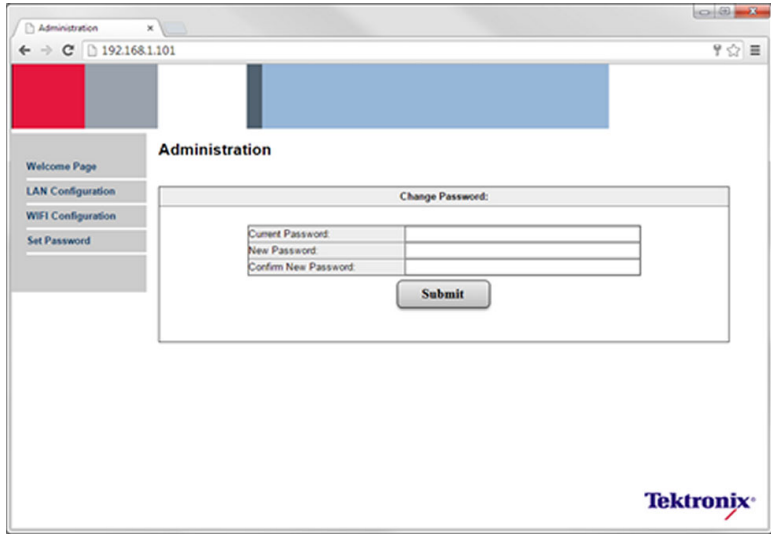


Figure 8: Administration page

You can change the password on this page. The default password is **admin**.

You are now ready to learn how to use the TBX3000A in a teaching lab environment. Please go to the Tektronix website at www.tektronix.com to find the user manual for your new product, and to find other information about TekSmartLab™.

We appreciate your business!