

# BGA244 Binary Gas Analyzer

## Quick Start Guide



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## Certification

Stanford Research Systems certifies that this product met its published specification at the time of shipment.

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## Warranty

This Stanford Research Systems product is warranted against defects in materials and workmanship for a period of one (1) year from the date of shipment.

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## Service

For warranty service or repair, this product must be returned to a Stanford Research Systems authorized service facility. Contact Stanford Research Systems or an authorized representative for a RMA (Return Material Authorization) Number before returning this product for repair. These are available at [www.thinksrs.com](http://www.thinksrs.com) under Support, Repair/Calibration.

All users returning a BGA244 back to the factory for repair and/or service must submit a correctly completed "Declaration of Contamination of Equipment" form, available as part of the RMA process. The SRS personnel carrying out repair and service of the BGA244 must be informed of the condition of the components prior to any work being performed.

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## Warning



All returns to SRS must be free of harmful, corrosive, radioactive or toxic materials.

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Printed in the USA

# Safety Procedures and Precautions

Observe the following general safety precautions during all phases of operation of this instrument. Failure to comply with these precautions or with other specific warnings in the User Manual violates the safety standards of intended use of this instrument and may impair the protection provided by the equipment. Stanford Research Systems, Inc. assumes no liability for the customer's failure to comply with these requirements.

## **DO NOT SUBSTITUTE PARTS OR MODIFY THE INSTRUMENT**

Do not install substitute parts or perform any unauthorized modification to the instrument. Return the instrument to Stanford Research Systems or an authorized representative for service and repair to ensure all safety features are maintained.

## **SERVICE BY QUALIFIED PERSONNEL ONLY**

Operating personnel should not attempt any component replacement or internal adjustments. Any service should be performed by qualified service personnel only.

## **USE CAUTION WHEN OPERATING WITH HAZARDOUS MATERIALS**

If hazardous materials are used, users must take responsibility to observe proper safety precautions, completely purge the instrument when necessary, and ensure the material used is compatible with materials in this product, including any sealing materials.

## **PURGE THE INSTRUMENT**

After installing the unit or before removing it from a system, purge the unit completely with a clean dry gas to eliminate all traces of the previously used flow material.

## **USE PROPER PROCEDURES WHEN PURGING**

Purge the instrument under a ventilation hood. Wear gloves for protection during this procedure.

## **EXPLOSIVE ENVIRONMENT WARNING**

The BGA244 is not ATEX rated. Under normal operating conditions the BGA244 cannot ignite the gas being analyzed. However, if the instrument is used with flammable or explosive gas mixtures, SRS recommends the use of flame arrestors on both gas ports.

The BGA244 gas cavity's proof pressure (2,500 psia) is sufficient to contain the detonation of an explosive gas mixture of up to 30 psia. The instrument will likely be rendered non-operational by such an event.

## **USE PROPER FITTINGS AND TIGHTENING PROCEDURES**

All instrument fittings must be consistent with instrument specifications and compatible with the intended use of the instrument. Assemble and tighten fittings according to manufacturer's directions.

**CHECK FOR LEAK-TIGHT FITTINGS**

Carefully check all connections to ensure leak tight installation.

**OPERATE AT SAFE INLET PRESSURES**

Never operate at pressures higher than the maximum operating pressure of 150 psia (100 kPa).

**INSTALL A SUITABLE BURST DISK**

When operating from a pressurized gas source that may exceed the cavity proof pressure (2500 psia), install a suitable burst disk to prevent system explosion should the system pressure rise.

**KEEP THE UNIT FREE OF CONTAMINATION**

Do not allow contaminants to enter the unit before or during use. Contamination such as dust, dirt, lint, glass chips and metal chips may permanently damage the unit or contaminate the process.

**ALLOW PROPER WARM UP TIME**

The unit may not meet all specifications unless sufficient time is allowed for the unit to stabilize at the designed operating temperature. Do not REL the unit until the warmup is complete.

**GROUNDING**

Proper operation of this instrument requires that it be connected to earth ground. If the power source does not provide the required grounding, you should add a protective ground to the device.

**COVERS**

Do not operate the unit with the instrument covers removed.

**RETURNS**

All returns to SRS must be free of harmful, corrosive, radioactive or toxic materials.

Users returning a BGA244 back to the factory for repair and/or service must submit a correctly completed "Declaration of Contamination of Equipment" form, available as part of the RMA process. The SRS personnel carrying out repair and service of the BGA244 must be informed of the condition of the components prior to any work being performed. See the BGA244 User Manual, Appendix D: *Declaration of Contamination* for information required for the RMA form.

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# BGA244 User Manual

See [www.thinksrs.com/downloads/PDFs/Manuals/BGA244m.pdf](http://www.thinksrs.com/downloads/PDFs/Manuals/BGA244m.pdf) for the complete BGA244 User's Manual.

It is recommended to read the following chapters of the BGA244 User Manual prior to installing and operating the BGA244.

- Chapter 2 (Installation Guide) prior to installing the BGA244 into your system
- Chapter 3 (Operation Guide) and Chapter 4 (Application Guide) prior to operating the BGA244

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# Unpacking

## Before You Open the Box

Do not remove the gas port caps until just prior to connecting the unit to your gas manifold to reduce the chance of contamination of the cell.

Inspect all components of the SRS BGA244 upon unpacking. Report any damage to Stanford Research Systems immediately. Compare the contents of the shipping container to the list below and report any discrepancies.

## What is included with the BGA244

1. One BGA244
2. One 6' (1.8 m) USB cable
3. One Quick Start Guide (this document)

### Accessories (if ordered)

1. BGA-24            +24 V<sub>DC</sub> Power Supply
2. BGA-S            Acrylic shield for the LCD display
3. BGA-M            Metal cover to replace display
4. Adapters        Gas fitting adapters

## What is included with the BGA244HP

1. BGA244HP
2. One 6' (1.8 m) USB cable
3. One Quick Start Guide (this document)

### Accessories (if ordered)

1. BGA-24            +24 V<sub>DC</sub> Power Supply
2. BGA-S            Acrylic shield for the LCD display
3. BGA-M            Metal cover to replace display

## What is included with the BGA244E

1. One BGA244E (BGA244 installed within a NEMA / UL-50 enclosure)
2. One 6' (1.8 m) USB cable
3. One Quick Start Guide (this document)

### Accessories (if ordered)

1. BGA-24            +24 V<sub>DC</sub> Power Supply
2. BGA-S            Acrylic shield for the LCD display
3. BGA-M            Metal cover to replace display
4. Adapters        Gas fitting adapters

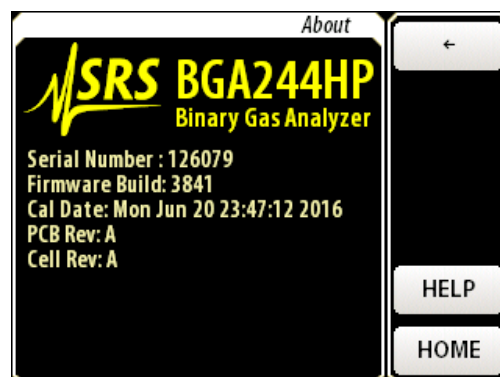
## Quick Start

This guide is intended to help users get started making measurements with the BGA244, BGA244HP or BGA244E. If the BGA244 has accessory BGA-M (metal cover) in place of the display it is recommended to use the BGAMon software to configure the unit and monitor the results. Refer to Chapter 5 (BGAMon) of the User Manual for details.

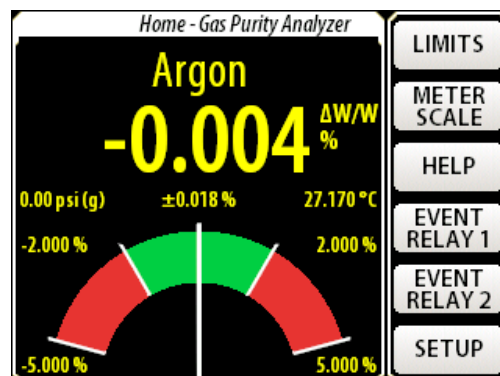
## Quick Test

Connect power using either USB power or +24 V<sub>DC</sub>. Make certain that the USB device and cable are sufficient to power the device if using USB power. See Power in Chapter 2 of the User Manual for more information. If you are planning on operating with both USB and +24 V<sub>DC</sub> connected, first connect +24 V<sub>DC</sub>, wait until Self Test has completed and then connect the USB cable.

When power is first applied, a power-on splash screen will appear. After a few seconds the “About” information page will appear. This displays the unit serial number, firmware version, calibration date and hardware version.



After about 15 seconds the Gas Purity Analyzer Home page will appear. Assuming the unit has come from the factory and the gas port caps haven't been removed, it should display <0.1% deviation reading for Argon.



Disconnect power before continuing with the following steps.



## Installation and Configuration

Plan your installation, including mounting and gas tubing connections. Depending on your application, this can be as simple as setting the BGA244 on a bench and connecting flexible tubing or may involve hard mounting the unit and forming metal tubing. Be sure to clean out gas lines prior to connecting them to the BGA244 to avoid contamination. Refer to Chapter 2 (Installation Guide) of the User Manual if you have any questions regarding these procedures as improper installation can damage the unit.

1. Mount the BGA244 as appropriate to your application.
2. Connect the gas tubing to the gas ports following the appropriate procedure for the specific gas fittings. Either gas port can be used for input or output.
3. Connect either USB power or +24 V<sub>DC</sub>. If using USB power, be certain that the USB device and cable are sufficient to power the device. Refer to Power (Chapter 2 of the User Manual) for more information. The splash screen and “About” page should appear as described in Quick Test.
4. Configure the BGA244. Note that it may be easier to configure the unit prior to installing it into your system, especially if access is restricted. See Chapter 3 (Operation Guide) of the User Manual for more information on each of the following steps.
  - a. Set the Instrument Mode: [HOME] [SETUP] [INSTRUMENT MODE ↓]. There are 3 choices: Binary Gas Analyzer, Gas Purity Analyzer or Physical Measurements.
  - b. Select the Gases: [HOME] [SETUP] [SELECT GAS]. Set the Primary Gas and Secondary Gas (note that a Secondary Gas is not required for the Gas Purity Mode). Press [SELECT GAS] to open the gas selection window. Type the first few characters of its name, formula or CAS number, then press [ENTER] to open a list of gases that match that string. Select the desired gas from that list.
  - c. Configure the Pressure: [HOME] [SETUP] [PRESSURE]. There are two ways to enter pressure information to the BGA244. See Pressure (Chapter 3 in the User Manual) for information. You can use the following procedure assuming you are operating at a known, static pressure.

Press [ENTER USER PRESSURE] to open the User pressure window. Enter the pressure and select gauge or absolute units. Enter the ambient pressure if using gauge units.
  - d. Set the Meter Scale and Limits: [HOME] [METER SCALE] and [HOME] [LIMITS] appropriately. (For the Binary Gas and Gas Purity Analyzers only).
5. Flow gas through the system. The BGA244 should display the selected gases and concentration, purity or physical measurements of the gas.

## Windows Drivers for the BGA244

If the BGA244 is connected to the USB port of a computer running Microsoft Windows, you may be prompted with a “New Hardware Found” message and an invitation to search for the USB Driver. There are two USB drivers for the device (VCP and D2XX drivers). Depending on the version and configuration, Windows may either automatically install the drivers or prompt you to search for them. Allow it to install the drivers if you plan to configure or control the BGA244 using this computer. If there are difficulties installing the driver, see Appendix E of the User Manual for details on manually installing the drivers. If you have no plans of using this computer to configure or control the BGA244, cancel the driver installation.