Trace Elemental
Instruments

Configuration: GLS with safety lock*

Configuration: GBS*

// GLS & // GBS

Gas and LPG sampling made easy! TE Instruments presents the next generation Gas & LPG sampling systems; the GLS and GBS.

Analyzing gas and liquefied gas is often seen as difficult and problematic.
The chosen sampling technique and ability to handle different kinds of gas at different pressure levels and physical state is challenging to say the least.

TE Instruments has developed two unique sampling systems:

- The GLS (Gas & Liquefied gas Sampling module) for sampling gas and LPG from pressurized gas cylinders.
- The GBS (Gas Bag Sampling module) for sampling gas from gas bags (e.g. Tedlar™ bags) or balloons.

The GLS and GBS both form a perfect match together with the XPLORER combustion analyzer for the measurement of Total Nitrogen, Total Sulfur and Total Chlorine. Both instruments can be combined as stand-alone sampling system with any other combustion analyzer.

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Taking simplicity to the next level

• GLS; Pressurized gas & LPG samples.

Two integrated loops; one with a volume of 10 mL for gas and one with 100 µL for liquefied gas are the standard built-in sampling loops for the GLS. Simply position the pressurized sample cylinder at the appropriate introduction port and start the XPLORER combustion analyzer.
The chosen analysis method is being executed and the pre-set number of sample loops is run and analyzed. Parameters like evaporation speed, temperature, flow and pressure are automatically controlled and monitored at all times.

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Ease of use: no pressure

• GBS; Atmospheric gas samples.

In comparison to sampling gas using a pressurized gas cylinder, the GBS samples directly from a gas bag. There is no need for restoring the pressure resulting in easier transportation of taken samples. In addition, the use of gas bags is cost effective and substantially lower than steel or aluminum cylinders, requiring a protective coating.
Former gas bag sampling systems were operated manually, sampling only one gas bag per analysis. The GBS can take up to 10 gas bags at the same time and analyze in sequence. This not only provides more productivity, but ensures less contamination and therefore more reliable results.
Communication between the XPLORER and the GLS or GBS runs via an USB port. Within a few minutes the sample is measured and the final result calculated and stored for reviewing. Depending on the specific application, methods in the embedded software can be customized as desired by the operator. Parameters like temperature, flow and pressure are automatically controlled and monitored at all times.

Safe, reliable and robust

In most cases the type of gas to be analyzed is highly flammable and might pose a risk in the laboratory. To ensure the safest possible way of handling, both the GLS and GBS are equipped with a gas leakage sensor which constantly measures the composition of the air inside the sampler. When hydrocarbons are detected, the sampler assumes there is a possible dangerous situation and aborts all activity. The user interface on the gas sampling systems and the XPLORER monitor indicate that a situation has occurred and various safety measures are taken. The introduction of sampling gas into the XPLORER system and the carrier gas flow are stopped. After inspection and correction, the reset button on the touch screen can be pressed in order to resume activity.

Safety lock

The GLS automatic safety mechanism detects pressure in the connection between the sample cylinder and the GLS. As long pressure is detected, the safety lock will automatically prevent unintended removal of the pressurized sample cylinder. The moment the operator has closed the cylinder and pressure has been released in the connection, the safety lock will automatically drop for removal of the sample cylinder.

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Truly unique: calibrating out of a single CRM

The GLS and GBS are both able to create a calibration line out of a single certified reference material when connected to the Xplorer combustion analyzer. Using the automatic calibration mode will free up time from the operator, while generating the ideal calibration curve using the Xplorer.

The GBS can select different volumes from 10 up to 1000 mL out of a single gas bag and introduce them automatically into the Xplorer. The GLS is equipped with standard built-in sample loops. By setting a number of sample loops using a certified reference material, a calibration line can be created. Up to 100 sample loops can be set through the local user interface or through TE Instruments Software (TEIS).

Ultra-low detection

The GLS is able to handle liquefied gas samples at the same ultra-low level as liquid samples: 20 ppb Sulfur / Nitrogen.

Components in gas can usually not be measured at the same low level as liquid or liquefied gas samples because of the physical laws applicable. However the GLS and GBS are able to handle these kind of samples perfectly, both sampling systems demonstrate a detection limit in the low ppb's with outstanding repeatability.

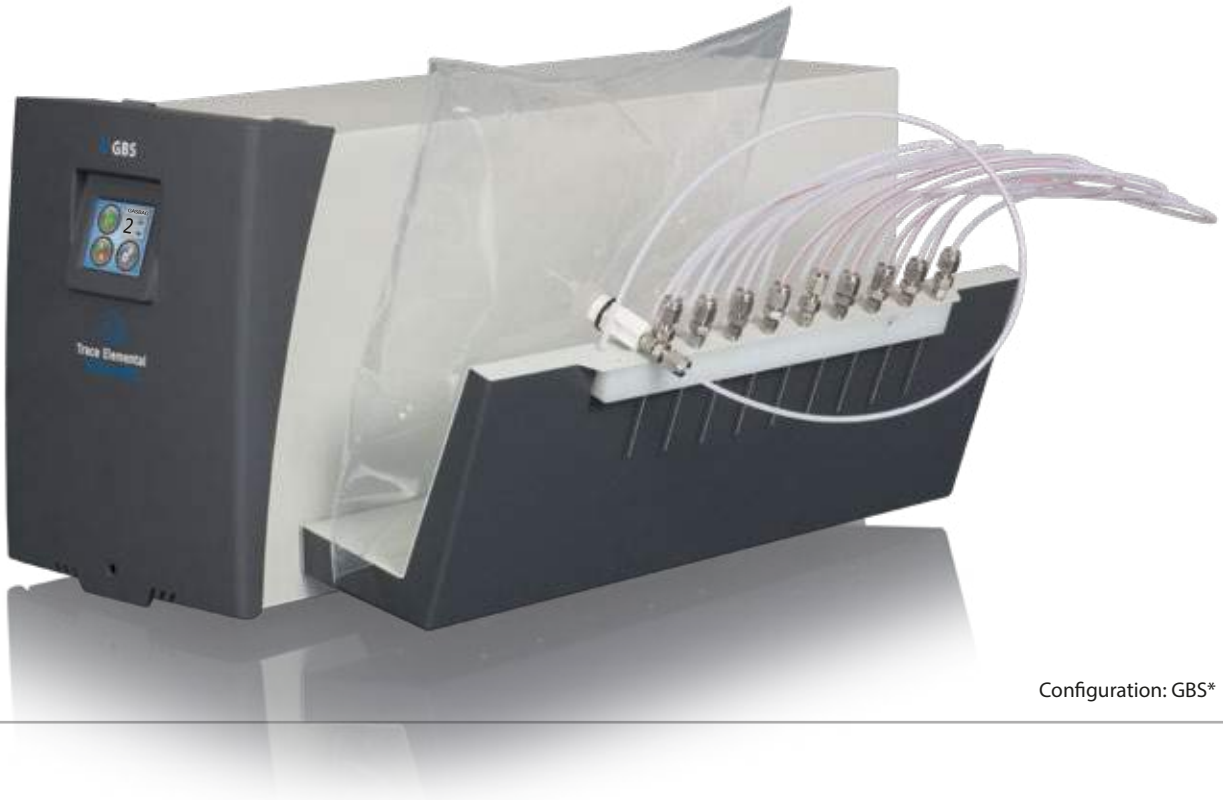
To avoid any cross contamination, the GLS and GBS feature purge and rinse options. In the GBS the 100 mL gas tight syringe and flow path of the sampling systems are purged by carrier gas.

Stand-alone

When the GLS or GBS are used as a stand-alone sampling system, all options, for example customized methods, amount of injection and purging, can be set by the incorporated touch screen.

In the GLS the gas sample pressure from the cylinder is reduced to an optimum gas pressure in the sample loop, which is manually controlled by the operator.

The pressurized gas sample in the liquid phase is introduced by a controlled liquid-to-gas expansion in a heated sample loop, towards the combustion analyzer for problem free oxidation.



Configuration: GBS*

Configuration: XPLORER with ARCHIE and GLS*

Features GLS

- Save installation high pressured gas bottles
- Fully automated
- Software controlled
- Integrates with TE Instruments software
- Stand-alone function
- Intuitive touchscreen
- Default & customized methods
- Two separate sample channels for Gas & LPG
- Calibration line from single CRM
- Safety lock option
- Heated pressure control & vaporizer

Features GBS

- Easy and fast installation
- Fully automated
- Software controlled
- Integrates with TE Instruments software
- Stand-alone function
- No sample pressure required
- Default & customized methods
- Up to 10 gasbags automatically
- Calibration line from single CRM

GBS Specification

Dimensions (W x H x D)	37.0 x 28.5 x 56.0 cm (14.6 x 11.2 x 22.0 inch)
Weight	15.3 kg (33.7 lbs)
Carrier gas connection	⅛'' Swagelok
Carries gas	Argon or Helium (3.5 - 8 bar)
Primary pressure gas sample	Atmospheric pressure
Calibration	Auto calibration single & multi channel
Sample	Up to 10 sample bags / balloons
Sample volume	10 - 1000 mL
Operation mode	Fully software controlled (TEIS) or Stand-alone (touchscreen)
Vent gas connection	¼'' Swagelok

GLS Specification

Dimensions (W x H x D)	30.0 x 28.5 x 56.0 cm (11.8 x 11.2 x 22.0 inch)
Weight	18 kg (39 lbs)
Carrier gas connection	⅛'' Swagelok
Carries gas	Argon or Helium (3.5 - 8 bar)
Primary pressure gas sample	Up to 50 bar
Secondary sampling pressure (gas)	2 - 5 bar (29 - 72 psi) gauge; adjustable
Primary pressure liquefied gas	Up to 25 bar
Secondary sampling pressure (LPG)	Automatically controlled vaporizer
Calibration	Auto calibration from single CRM
Evaporation Temperature	Range ambient up to 75 °C
Sample loops	10 mL gas; 100 µL liquefied gas (or customized loop)
Operation mode	Fully software controlled (TEIS) or Stand-alone (touchscreen)
Vent gas connection	¼'' Swagelok

*Used images are examples of configurations which may deviate from ordered configurations.