

Quick Start Guide for the GA5000

This document serves as a quick reference guide and is not intended to replace the user manual. It is recommended to consult the user manual for more detail. Geotechnics has relied on the information in the user manual to develop this guide and makes no representation of warranty as to the accuracy of the guide.

1. About the GA5000

The GA5000 is commonly used to measure landfill gases from monitoring wells, as well as internal flow and relative pressure.

The GA5000 is a sensitive scientific device and should be handled with care. If you are unsure of its operation, it is recommended you consult the user manual or someone who has had experience with this gas analyser.

To reduce the risk of water ingress which can be costly, the GA5000 should not be used in the rain or where there is a likely chance of water ingress.

2. Turning the GA5000 On

- a. Press and hold the 'Power' button until the green light is lit.
- b. The unit will run through a self-test and prompt when it's ready.
- c. Press the 'Next' button to continue.

3. Selecting User ID

- a. Using the default user ID, press 'Accept' to continue.
- b. If you have a customized ID, scroll using the number 2 and 8 buttons and highlight the desired ID. Press the 'Enter' button to select and continue.
- c. When you are taken to the 'Home' screen, the unit is ready to measure.

Note: readings should all show zero quantities except for Oxygen, which should show around 20.9%.

4. Preparing to Take Measurements

- a. Always use the tubing provided and a water trap filter to prevent water ingress and damage to the equipment.
- b. Attach the clear tube to the white port of the device, with the water trap filter at the end.
- c. If the sampling point has a male quick-connect fitting, push the clear tubing that is connected to the brass female quick-connect fitting to the water trap filter.
- d. Attach the yellow tubing to the yellow exhaust port of the device.

5. Taking Measurements

5.1 Option 1: Measurement by Pre-set Order

- a. From the 'Home' screen, press 'Start'.
- b. The on-screen prompts will take you through the following parameters in this order:
 - Pressure Readings
 - Gas Readings
 - Flow Readings
- c. It is important to disconnect the tubing from the device when establishing zero points during the pressure and flow reading stages.

5.2 Option 2: Flow Measurements

- a. From the 'Home' screen, press the 'Special Actions' button and select 'Flow' by pressing the number 4 key.
- b. Make sure the sample tube is NOT connected to the blue port – press the button for 'Zero Flow'.
- c. Once zeroed, move the sample tube from the white port to the blue port.
- d. Press the button for 'Start' to begin recording.
- e. Attach the sample tube to the wellhead - a graph with flow readings vs. time will be displayed. Press the button for 'Store' to store the reading.

5.3 Option 3: Pressure Measurements

- a. From the 'Home' screen, press the button for 'Start'.
- b. Disconnect all sample tubes. When readings return to zero, press the button for 'Next'. If readings do not return to zero, press the button for 'Zero' to zero the transducers before pressing the 'Next' button.
- c. Connect the white sample tube to the white port and also to the sample point. Ensure the yellow and/or blue tubes are vented to the atmosphere. Press 'Next'.
- d. On the 'Home' screen, wait for relative pressure readings to stabilize and then press the button for 'Next'.
- e. Pressure readings have now been fixed and recorded.

5.4 Option 4: Gas Measurements

- a. Attach the clear tubing to the white port of the device and connect that to the sample point.
- b. From the 'Home' screen, press the 'Special Actions' button and select 'Simple Gas' by pressing the number 1 key.
- c. The pump will start drawing in the sample. It will continue to do this until the fan counter reaches zero (shown in the upper-right of the screen).
- d. Press the 'Store' button to save the readings.

6 Shutting the GA5000 Down

- a. Disconnect all sample hoses.
- b. Press the fan button.
- c. Allow the fan counter to reach 20, or the gas readings to return to zero (except for Oxygen which should read around 20.9%).
- d. Press and hold the red power button until the screen shows that it is carrying out a purge.
- e. Allow the purge counter to reach zero, after which the device will turn itself off.

7. Tips

7.1 In-between Taking Measurements

- a. Press the pump button after you have completed taking measures, to purge the device for at least 20 seconds. This is important to obtain accurate readings for the next sample and to avoid sensor damage from the trapped gases inside the instrument.

7.2 Screen Light

- a. Press the yellow light bulb button to dim the display to conserve battery life.
- b. Press the yellow light bulb button again to turn on the brightness.
- c. The screen automatically dims after a few minutes of being idle.

7.3 Built-in Help Screens

- a. Press the large '?' button at any time for on-screen help or for information about the immediate display.

8. Troubleshooting

| Symptom | Possible Cause(s) | Recommended Actions |
|--|---|---|
| 1. Cannot turn on | Flat/Defective battery | <ol style="list-style-type: none"> 1. Recharge the battery 2. Whilst charging, ensure the charger is operating correctly by checking the light codes printed on the charger |
| 2. "<<<<<" or ">>>>>" appears as the reading for a gas | <p>The particular gas channel needs to be re-calibrated</p> <p>The sensor for that particular channel is faulty</p> | <ol style="list-style-type: none"> 1. Continue to use if gas channel in question is not a critical parameter that needs to be recorded 2. Return to Geotechnics for attention |
| 3. The pump suddenly turns off | <p>Inlet port(s) blocked</p> <p>Water ingress</p> <p>Pump has been running too long</p> | <ol style="list-style-type: none"> 1. Clear any obstruction from tubing and ports 2. Check water trap filter is not dirty or saturated 3. If you notice moisture in the tubing between the white inlet port and the water trap filter, water has made it inside the machine – return to Geotechnics 4. Leave pump off to cool down. If suction from pump is weak the pump diaphragm has ripped. 5. Return to Geotechnics |
| 4. Elevated gas readings when in fresh air | <p>Previous gas sample trapped internally</p> <p>Sensor is faulty</p> | <ol style="list-style-type: none"> 1. Trapped gases have degraded the internal sensors. Return to Geotechnics for attention |
| 6. 'Lamp' flashing when power on | PID lamp failure or low ion concentration inside lamp in cold environment | <ol style="list-style-type: none"> 1. Turn unit off & on 2. Return to Geotechnics to rectify |
| 7. Readings not registering | <p>Leak in the sample train</p> <p>Pump diaphragm damaged</p> | <ol style="list-style-type: none"> 1. Check flow integrity 2. Return to Geotechnics to rectify |