Loop Barrier Oxygen Analyzer Quick Start Guide

First air calibration and measurement

PST-QSG-3206-1.1

PST
PROCESS SENSING
TECHNOLOGIES

ProcessSensing.com
07/2023

Welcome to the Quick Start Guide for first air calibration and first measurement using your loop barrier analyzer.

Here, you will find information covering **first air calibration in section A**, and **connecting to your process gas in section B** to make your **first measurement in section C**. Please read the safety information below.

Start here

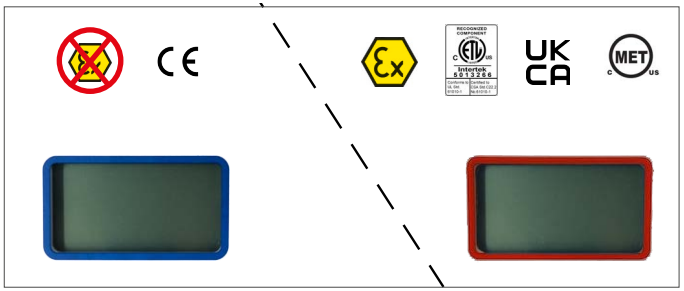
⚠ Safety information

- Avoid covering the vent for the test flow indicator when gas is flowing to the sensor. This can pressurize the sensor causing damage.
- To remove moisture and particulates, open the sensor housing and either blow on the sensing surface or gently wipe the surface with a damp cloth. Ensure ppm sensors have minimal exposure to air.
- You must connect the analog signal output to a recording device in accordance with local safety directives.

⚠ The first calibration is of utmost importance as all subsequent calibrations are based on the initial one.

NOTE: We recommend you use certified span gas for calibration; if this is not available to you, follow these instructions to carry out an air calibration.

The GPR-series of loop barrier oxygen analyzers is compliant with the following safety approvals and directives:



⚠ A unit with a blue display outline is for general purpose only, red is for hazardous area, as shown above.

User Interface (UI)

Button	Function
☰	Menu
↵	Enter
↓	Previous (decrement)
↑	Next (increment)

A. First air calibration

GPR-1500

The GPR-1500 is delivered without the sensor installed to preserve its operational life. To install the sensor:

1. Apply power to your analyzer (refer to Figure 4 on page 5).
2. Using the two latches, open the front window.
3. Use ↓ and ↑ to navigate to **Select Range**.
4. Press ↵ to select **0-25% (Air Cal)**.
5. Open the sensor housing (refer to Figure 2 on page 5 for guidance).
6. Loosen the star wheel then disengage the top sensor housing by turning it 90° counter-clockwise. Refer to 'b' in Figure 2 on page 5.
7. Remove the sensor from its packaging, remove the shorting flags and immediately place in the top sensor housing (refer to Figure 1 on page 4).
8. Hold the sensor in the top sensor housing away from any gas stream. After 2...3 minutes the sensor is stable.
9. On your analyzer, press ☰.
10. Use ↓ and ↑, navigate to **Calibration** > **Span Calibrate**.
11. Now use ↓ and ↑ to enter the value 20.90 %. Ensure the reading has stabilized before continuing.

NOTE: When a Span or Zero Cal starts, only "Abort" with ↓ is shown until the reading is stable, then "Accept" with ↑ appears.

12. Use ↑ to **Accept**, and ↓ to **Abort**.
13. Now place the sensor into the bottom sensor housing with the gold contact plate facing upwards, (see Figure 1 on page 4 for guidance,) and replace the top sensor housing by placing it on top of the sensor and turning 90° clockwise.
14. Secure it with the star wheel at the bottom of the housing assembly (refer to 'b' in Figure 2 on page 5).
15. **Quickly close your analyzer and continue immediately to section B.**

GPR-2500

1. Apply power to your analyzer (refer to Figure 4 on page 5).
2. Using the two latches, open the front window.
3. Use ↓ and ↑ to navigate to **Select Range**.
4. Press ↵ to select **0-25% (Air Cal)**.
5. Disconnect the sensor cable by turning the lock nut counter-clockwise (refer to Figure 3 on page 5 for guidance).
6. Remove the sensor from its base by unscrewing counter-clockwise, then reconnect the sensor cable.
7. Hold the sensor and its cable away from any gas stream. After 2...3 minutes the sensor is stable.
8. On your analyzer, press ☰.
9. Use ↓ and ↑, navigate to **Calibration** > **Span Calibrate**.
10. Now use ↓ and ↑ to enter the value 20.90 %. Ensure the reading has stabilized before continuing.

NOTE: When a Span or Zero Cal starts, only "Abort" with ↓ is shown until the reading is stable, then "Accept" with ↑ appears.

11. Use ↑ to **Accept**.
12. Now disconnect the sensor cable from the sensor and screw the sensor into its base before reconnecting the sensor cable.
13. **Quickly close your analyzer, ensuring the gasket is firmly in place between the door and the enclosure body, and continue immediately to section B.**

B. Process gas connection

1. Connect your process gas line to one of the ports.
2. Ensure the gas is venting to atmosphere.
3. Ensure the flow rate is at 1...2 SCFH and allow the gas to flow for 2...3 minutes. This will purge the system.

Your analyzer is now ready to use.

C. Making your first measurement

1. Observe the reading on your analyzer to ensure the O_2 concentration is trending downward.
2. When the O_2 reading is in the desired sampling range, press ☰ on your analyzer.
3. Use ↓ and ↑ to navigate to **Select Range** then press ↵.
4. Use ↓ and ↑ to select your required operating range.

E.g. Response time: Sensor exposed to air for 2...3 minutes and installed in <1 ppm_V O_2 sample gas:

Reading	Recovery time (Air to 0 ppm with N_2 purge)
0.1 %	5 minutes
100 ppm	30 minutes
10 ppm	60 minutes
> 1 ppm	6-12 hours

NOTE: Response times are dependent on your analyzer model as well as your sensor.

D. Figures

*Figure 1 - **GPR-1500:** Aligning your sensor*

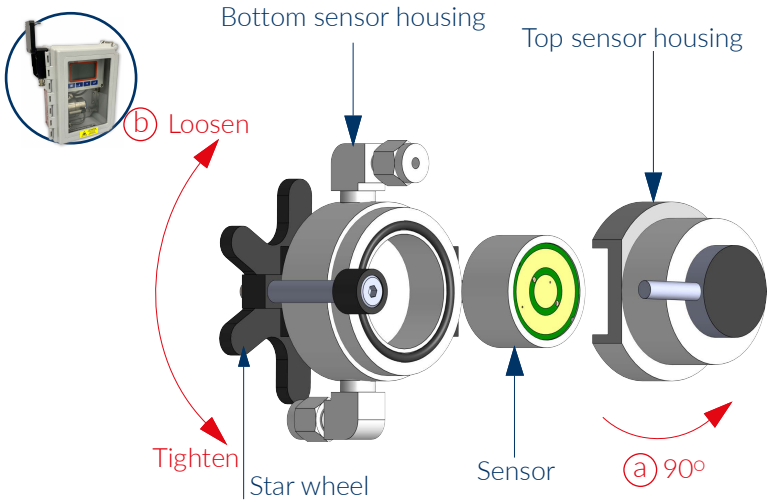
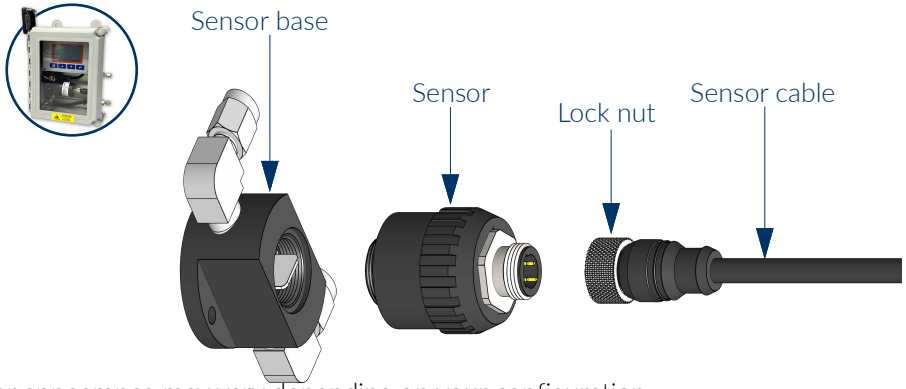


*Figure 2 - **GPR-1500:** Installing and uninstalling your sensor*



Sensor appearance may vary depending on your configuration

*Figure 3 - **GPR 2500: I**nstalling and uninstalling your sensor*

Figure 4 - Wiring your analyzer

E. Useful links

Scan below for more information:

PST
PROCESS SENSING
TECHNOLOGIES

ProcessSensing.com