

Polaris C with a CO₂ High Range probe

The Polaris C CO₂ High Range meter measures carbon dioxide in the gas phase within the range 0 – 100 % vol CO₂ / 0 – 1000 mg/L. It is designed for monitoring high-concentration environments where a standard value dissolved-CO₂ sensor is not sufficient and stable enough.

Unlike water-based CO₂ instruments, it measures direct gaseous CO₂ and therefore requires only gas calibration.

Why measure CO₂ in gas?

Accurate CO₂ monitoring is essential wherever gas levels can affect biological or technical processes. For example, in hatchery degassing systems, research setups, or CO₂ control of aeration and safety ventilation. Water with more than ~50 mg/L CO₂ rapidly loses gas to the air, so calibration in liquid becomes unreliable. The High Range sensor bypasses this limitation by detecting CO₂ directly in the gas phase.

Measurement features

- Direct gas detection: Measures true CO₂ partial pressure in air/gas. Not dependent on pH or alkalinity.
- The Polaris C CO₂ High Range measures gas in mg/L, but the calibration value is entered in % vol. The meter automatically handles this conversion internally.
- Wide range: 0-100 % vol CO₂ (≈ 0-1000 mg/L equivalent).
- Factory-calibrated: Ready for use on delivery; monthly recalibration ensures optimal accuracy.
- Temperature-compensated: Automatically adjusts for gas temperature (0-40 °C).
- Stable and maintenance-free: no liquids or pH conditioners are required.

Summary

The Polaris C CO₂ High Range meter offers simple, stable and reliable measurement of CO₂ gas in high-concentration environments. Calibration requires only CO₂ gas with known value and the measuring chamber. No liquids or chemical preparation needed.

Calibration of the CO₂ High Range Probe

Calibration ensures accurate readings and should be performed about once per month or after long storage. Calibration is done entirely in gas. No liquid or conditioner is used.

Included accessories

- 1 × measuring chamber for CO₂ gas with 2 m / 6.5 ft hose.

Additional requirements (not supplied):

- Certified calibration gas (typically 100 % CO₂ or a known CO₂/inert mixture such as N₂/CO₂ or Ar/CO₂)
- Compatible gas regulator (optional) to ensure stable gas flow and prevent air contamination.



Notes

- **Stabilization requirement:** Keep the meter on for at least 10 minutes before/after calibration. Failure to do so may damage the sensor.
- Perform calibration in a dry, temperature-stable environment and allow the probe to reach ambient (room) temperature before starting.
- We recommend 100 % vol CO₂, but any known concentration can be used.
- Be cautious to avoid rough handling of the sensor at the probe's base.
- Repeat calibration if significant drift is observed.
- Typical accuracy after calibration: ±1 % of reading.
- The Polaris C CO₂ High Range measures gas in mg/L, while calibration is entered in % vol. The meter automatically performs this conversion internally.
- Always store the probe and the measuring chamber clean and dry for next use.

Calibration steps

Step 1: Prepare the probe

- Remove the yellow transport cap and black protector.
- Turn on the meter 10 minutes before, and let the probe stabilize to room temperature

Step 2: Insert the probe in the measuring chamber

- Place the probe in the supplied measuring chamber.
- Ensure the setup is completely dry; no water must be present.
- Connect the gas hose to the inlet.
- Activate the gas with a slow, steady flow - just enough to prevent air from entering.

Step 3: Access the calibration menu on your meter

- Turn on your meter and wait for the main menu to appear:

Cobália sync.

Calibrate

Set salinity

View log

Log mode

Setup

- Use the arrow buttons to select **Calibrate**. Press **OK** to confirm.

Step 4: Set the gas value on your meter and start calibration

- Use **▲ ▼** to set the concentration of your calibration gas (in % vol CO₂, as stated on the gas cylinder, max 100 % vol).
- The meter automatically converts the entered % vol value to mg/L.
- Press **OK** to move to the next digit and **ESC** to return to the previous.
- When the value is entered and confirmed, the meter displays: **Activate CO₂ gas**.
- When the gas flow is stable, press **OK** on your meter to begin calibration. The meter automatically completes the process.

Step 5: Finish and check the correct value of calibration

- When the calibration is complete (usually it takes about 3-10 minutes) the meter displays the message **Calibration done**.
- Press **OK** to go to the menu, then press **ESC** to return to the main reading page.
- Verify that the displayed value corresponds to the selected gas concentration.
- The reading will adjust and thereafter display **100 %** when finished.
- **After calibration, keep the meter powered on for 10 minutes before turning it off.**
- If calibration fails or drifts significantly, repeat the procedure from Step 3.
- If you are satisfied with the calibration, stop the gas flow, remove the probe, and reattach the black protector to the probe. Store clean and dry.