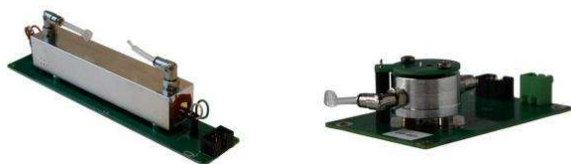


Getting started with Qbit gas sensors

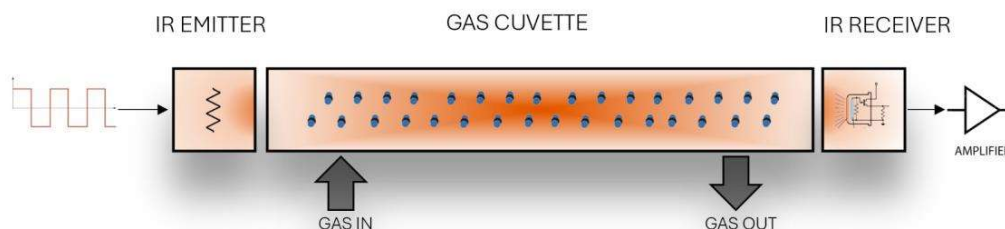


Dear Customer,

Thank you for choosing our gas sensors. We greatly appreciate your trust in our technology. Please review and follow the short guidelines below to ensure optimal performance. If you have any questions or need further assistance, our team is always here to help.

Introduction

Qbit sensors for detecting trace gases adopt NDIR technology (Non Dispersive Infra-Red). This technology is based on the measurement of optical absorption on some I.R. bands. characteristics of each individual gas.



To ensure proper use, please make sure to follow these recommendations:

- ✓ Maintain a stable flow rate between 100 and 400 sccm.
- ✓ Allow a minimum warm-up time of 5 minutes; for full specifications, a 30-minute warm-up is recommended.
- ✓ Minimize vibrations on the sensor
- ✓ Use a low-noise power supply

Quick set-up

Our gas sensors include a UART interface (default: BR 9600 with 8N1) that uses the ASCII protocol described in the corresponding user manuals (it can be downloaded here <https://www.qbit-optronics.com/en/note-tecniche-eng/>). The sensors pinout is illustrated in the figure below:

PINOUT	
1	GND
2	+5V in
3	UART RX sensor
4	UART TX sensor
5	3.3V out (max 10mA)
6	GND

To quickly connect your gas sensor to a personal computer, you can use one of our interface shields (USB, RS232, or Bluetooth). In this guide, we will use the USB shield as an example.

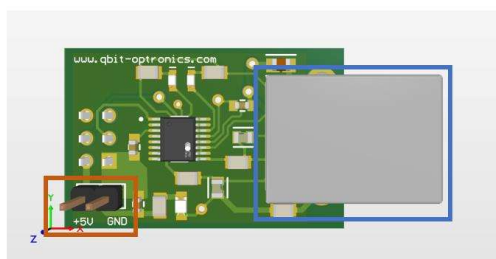
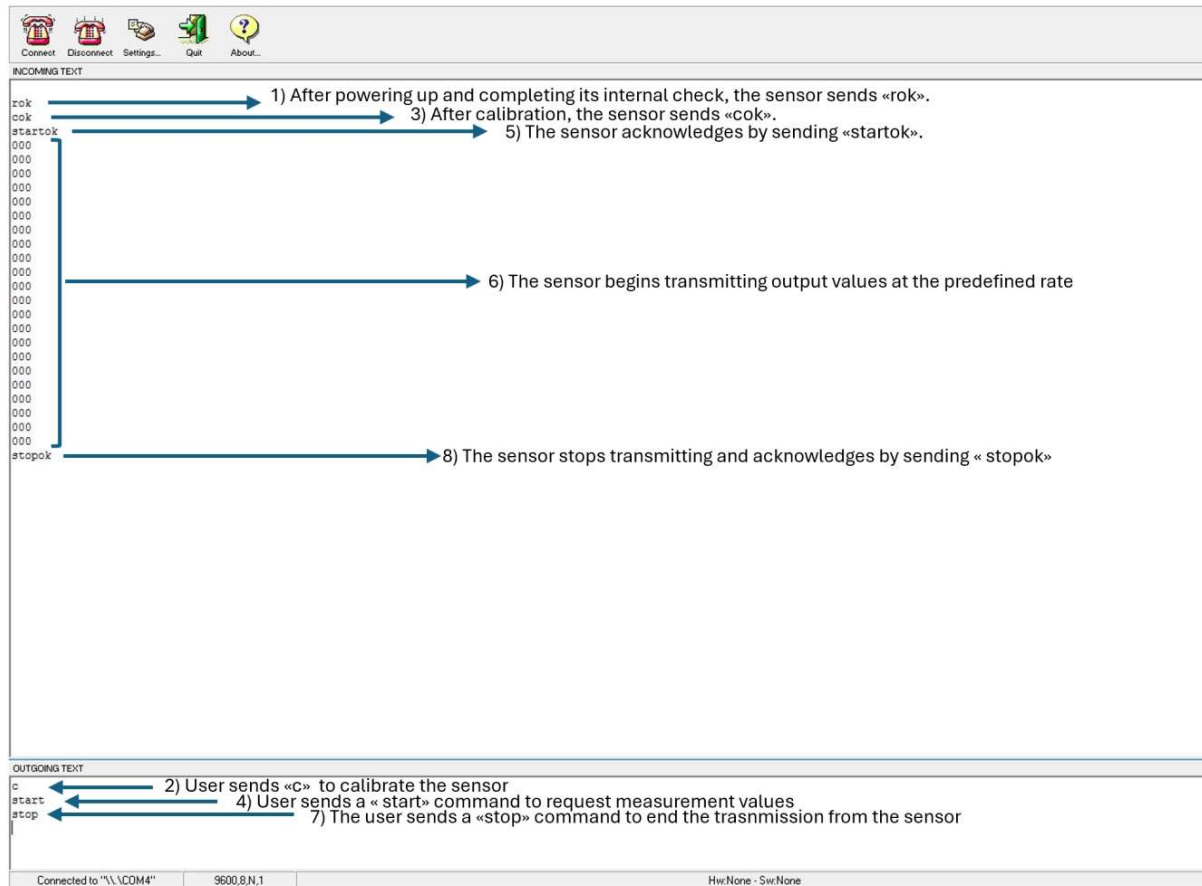


Figure 1 USB Shield connectors (Red:power ; Blue: USB Data)

1. Connect the shield to the PC using a standard USB B to USB A cable.
2. Verify that the green LED turns on and that the converter is recognized among the available COM ports.
3. To connect to the sensor and view its output, you'll need a serial monitor program (PuTTY, Tera Term, SimpleTerm). Any serial terminal will work, as long as you configure it with the correct port and baud rate for your sensor.
4. Attach the shield to the Qbit sensor under test.
5. Power the sensor via the shield's power header. The correct polarity is printed on both the top and bottom sides of the shield PCB. The green LED confirms that the sensor is powered.
6. Once the sensor outputs the "rok" message, you are ready to start your measurement session. During operation, the Tx and Rx LEDs of the shield will indicate data transmission and reception activity.

Example

The figure below illustrates the communication flow between the user and the sensor. For detailed command descriptions, configuration options, and advanced settings, please refer to the sensor's user manual.



⚠ Important note

Calibration should only be performed after the sensor has completed its warm-up time. Send the «c» command only once the warm-up period is finished.