



# Q20 Series Overview

## Portable Analyzer Family

Test for O<sub>2</sub> and/or CO<sub>2</sub> levels in packages, processes, and containers

- *Intelligent*
- *Durable*
- *Lightweight*
- *battery operated*
- *On-board data storage*
- *Available for O<sub>2</sub>, CO<sub>2</sub>, or both*
- *Test packages, processes, and containers*

Model	Analyzed Gases
Q20	<b>Oxygen only</b>
Q21	<b>CO<sub>2</sub> only</b>
Q22	<b>Oxygen and CO<sub>2</sub></b>



### Overview

The Q20 series of analyzers feature a color display, menu driven setup and calibration functions, a built-in sample pump, and data collection (up to 100,000 values).

This unit combines a fast response sensor for oxygen in a small, lightweight (under 2 lbs.) package for maximum transportability and ease of use in all types of gas measurement applications. The unit is battery operated and can be easily moved or transported as needed. The unit has a rugged miniature diaphragm pump with adjustable timing functions to operate only when sampling.



Sample probe/needle assembly for package testing,



Straight tube probe for insertion into various processes, containers, and bio enclosures.



# Q20 SERIES PORTABLE ANALYZER

## Overview

*The Q20 Series Portable Analyzer comes in three models:*

<i>Model Q20.....</i>	<i>for O2 only</i>
<i>Model Q21 .....</i>	<i>for CO2 only</i>
<i>Model Q22 .....</i>	<i>for both O2 and CO2.</i>

## FEATURES

- ◆ Keypad control of all functions
- ◆ Long life O2 sensor
- ◆ NDIR CO2 sensor
- ◆ Lightweight, portable
- ◆ Battery operated
- ◆ Easy, menu driven calibration
- ◆ Built-in data collection
- ◆ Programmable pump functions
- ◆ Sample probe /needle assembly for package testing
- ◆ Color display

The Q20 Series features a color display, menu driven setup and calibration functions, a built-in sample pump and high capacity data collection, up to 200K values.

This unit combines fast response sensors for oxygen and carbon dioxide in a small, lightweight (under 2 lbs.) package for maximum transportability and ease of use in all types of gas measurement applications. The unit is battery operated and can be easily moved or transported as needed. Low power consumption enables up to eight hours of operation before re-charging (charger included) is required. The unit has a rugged miniature diaphragm pump with adjustable timing functions to operate only when sampling.

The Q20 Series is available with a number of sampling inlet configurations to suit many different monitoring applications, including a sample probe/needle assembly for package testing, a straight tube probe with flexible tubing attachment for insertion into various processes, incubators, containers and bio enclosures.

## **Food Package Sampling**

The Q20 Series is equipped with fast response sensors, is ideal for rapid, routine package testing. With our standard sample probe/needle assembly, this unit is used for the measurement of O<sub>2</sub> or O<sub>2</sub> and CO<sub>2</sub> in many types of modified atmosphere (MAP), or "gas-flushed" packaged foods such as meats, snack foods, fresh vegetables, coffee, nuts, fruits, dairy products and ready-to-eat packaged foods including salads. MAP packaging can be done with a single gas such as nitrogen or a mixture of gases such as nitrogen, oxygen and carbon dioxide. Analytical testing of the package is valuable to determine if the concentrations are correct and whether or not the package has leaked.

## **Data Collection**

With built-in data collection, values can be stored with the touch of a button for each individual sample for package testing. For continuous testing, data collection can be set to store values at predetermined intervals. Storage capacity is available to record 100 K values.

## **Process Spot Checks**

The Q20 Series is perfect for spot checks of processes which must be checked routinely during the day. Portability, quick response ease of use and reliability make it a good choice for all types of monitoring applications. This unit can easily be configured to connect probes with tubing lengths from 1 to 10 feet. Connection to the sampling port includes a removeable filter to trap moisture or dirt particles.

## **Electrochemical O<sub>2</sub> Sensor**

Long-life, proprietary design yields accurate low-level measurements down to 0.1% oxygen and also measures full range up to 100% level. The sensor response is 5 seconds to 95%. The output is compensated for ambient temperature variations. The sensor is not heated, has no moving parts and requires no routine maintenance.

## **Infrared CO<sub>2</sub> Sensor**

The solid-state, dual wavelength infrared sensor has no moving parts, inert material optical cell, microprocessor-based calibration factors to linearize full range measurement up to 100%. Low-level measurements with full scale ranges from 0-20 or 0-100% V/V.

## **Sampling Probe Assembly**

The sample probe is one piece construction to minimize internal volume and to eliminate fittings which can leak. Inert tubing extends from the front panel fitting through the probe to the needle hub. The probe tip is fitted with a disposable filter for dirt and moisture removal.



The syringe needle attached to the end of the probe is inserted into the package through an adhesive-backed foam septum. With the pump on, sample is drawn through the probe and tubing into the carbon dioxide and oxygen sensors, through the pump and out to vent. The sensor signals are converted to concentration values and displayed on the front panel. The probe, tubing and sensors have been designed with minimal internal volume to reduce the sample volume needed, important for small package measurements. Neither sensor is heated, so the pump can be located downstream of the sensors and does not contribute to the volume requirement of sample. A disposable syringe filter can be inserted on the end of the probe to remove any moisture and dirt from the sample gas.

## **Sampling Pump**

The internal miniature diaphragm pump has menu driven adjustable timing functions to operate in a number of timing configurations, including preset cycles.

## **Rechargeable Battery**

Totally sealed, long-life Ni-Mh battery pack accepts full or partial charging cycle. Charger module with cord/plug assembly plugs into standard 115/240 Vac, 50-60 Hz outlet for charging, with international "mains" prongs to fit outlets worldwide.

## **Microprocessor/Electronics**

Micro-processor based electronics are controlled by a 32 bit microprocessor, for sensor signal processing, battery charging, pump timing, data collection and on/off control provide high accuracy and reliability with minimal component use to reduce size and cost.

## Technical Specifications

<b>SENSORS</b>	<b>Oxygen Sensor</b>	<b>Carbon Dioxide Sensor</b>
<b>Type:</b>	Proprietary Electrochemical	NDIR
<b>Range:</b>	0 to 25, 0 to 100%	0 to 20, 0 to 100%
<b>Sensitivity:</b>	0.1% O <sub>2</sub>	0.1% ; .01 for 0-20 range
<b>Minimum Detection Limit:</b>	0.1% O <sub>2</sub>	0.1% or .01% CO <sub>2</sub>
<b>Response time:</b>	5 seconds to 95% of the final reading, 17 seconds to final reading	15 seconds to 95% of the final reading, 20 seconds to final reading
<b>Accuracy:</b>	± 0.1 % O <sub>2</sub> or 2% of reading, whichever is greater	± 0.2% CO <sub>2</sub> or 2% of reading, whichever is greater (for 0-100 range)
<b>Calibration Controls</b>	Menu driven adjustments for all calibration functions, including SPAN and ZERO adjustment for O <sub>2</sub> and CO <sub>2</sub>	
<b>O<sub>2</sub> Calibration</b>	Weekly; set with room air set to 20.9% O <sub>2</sub> .	
<b>CO<sub>2</sub> Calibration</b>	Every 12 months; calibration gas recommended.	
<b>Sample Pump</b>	Miniature diaphragm type with menu driven timing. Flow rate approx. 5 cc/sec.	
<b>Sampling Assembly</b>	Sample Probe/Needle holder with luer needle, disposable filter, 1/16 O.D. PTFE tubing. Optional rigid tube/ plastic tubing connection to front panel.	
<b>Readout Display</b>	Color display	
<b>Battery</b>	Internal 6 pack AA NiMH 2000 mAh – expected run time ~ 8 hours under average duty cycle.	
<b>Size</b>	8W x 2H x 7D in. (203 x 51 x 178 mm)	
<b>Weight</b>	2 lb. (0.9 Kg)	
<b>Warranty</b>	2 years, parts and labor	
<b>Standards</b>		
<b>Included Consumables</b>	For package testing applications: Sample probe assembly, 2 luer fit needles, 200 foam septas, (2) particulate filters, (2) Moisture Guard filters.	
<b>Origin of Goods</b>	Our products are manufactured in the U.S.A.	

## ***MODELS***

	<u><i><b>Q20</b></i></u>	<u><i><b>Q21</b></i></u>	<u><i><b>Q22</b></i></u>
O2 SENSOR	YES	-	YES
CO2 SENSOR	-	YES	YES
O2 + CO2 SENSOR	-	-	YES
MEASUREMENT RANGE	O2: 0-25, 0-100 O2 only	CO2: 0-20, 0-100 CO2 only	O2 : 0-25, 0-100 CO2: 0-20, 0-100
INTERNAL PUMP	YES	OPTIONAL	OPTIONAL
DATA COLLECTION	YES	YES	YES
MENU DRIVEN FUNCTIONS	YES	YES	YES
BATTERY OPERATION	YES	YES	YES
COLOR DISPLAY	YES	YES	YES
KEYPAD CALIBRATION	YES	YES	YES