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# RESPIROMETRIC Sensor

## BOD and Respirometers

Versatile, compact and reliable solution  
for Aerobic and Anaerobic Respiration Tests



# RESPIROMETRIC Sensor

The RESPIROMETRIC Sensor is the new VELP measuring sensor designed to perform multiple respiration and degradation tests in a wide range of application such as Biochemical Oxygen Demand (BOD), Biochemical Methane Potential (BMP), Soil respiration test, Plastic Biodegradability test and more.

## VERSATILE AND PRECISE

- VELP RESPIROMETRIC Sensor is able to perform any kind of respirometric studies thanks to its powerful pressure sensor reading results in the range of 500 ÷ 2000 mbar (hPa).
- It is possible to perform Aerobic and Anaerobic analysis with the same Sensor by choosing the proper System.
- The RESPIROMETRIC Sensor allows results reading on display and through the software in BOD, BMP and Pressure.

## UNIQUE WIRELESS CONTROL

- The RESPIROMETRIC Sensor transmits data directly to the PC enabling real-time monitoring of the analysis curve.
- Respirometric studies can last days and even months, the VELP solution ensures constant monitoring of multiple analysis from an intuitive proprietary software, RESPIROSoft™.

## COMPREHENSIVE AND COMPACT

- VELP RESPIROMETRIC Sensor Systems come with all the required accessories to be operational right from the start.
- Different sizes and types of bottles and stirring stations to match any application requirement.
- The space-saving design of the systems maximize the number of sensors fitting inside the incubator.

## SCALABLE AND CLOUD ENABLED

- Wireless transmission of the RESPIROMETRIC Sensor measurement to the DataBox™ that is able to store data of up to 48 sensor, 8 Systems.
- Thanks to the Wi-Fi module the DataBox™ sends the data to the VELP Ermes cloud platform ensuring revolutionary lab experience.
- Both VELP Respirometric Sensor and FOC Connect Incubator can be monitored and controlled from VELP Ermes for a total control of the analyses.



ermes enabled

## EASY-TO-USE SENSOR

Intuitive buttons to set the analysis type, start the test and read the data



Bright 4-digit LED display

Fits easily on VELP bottles and kits

# RESPIROSoft™ Software

The RESPIROMETRIC Sensor comes with the proprietary software RESPIROSoft™ designed by VELP to operate with the new sensors. RESPIROSoft™ is extremely intuitive and easy to use providing all the important information of the analysis and the sensors batteries status in one window.

- Real-time analysis curve (BOD, Pressure)
- Most important info clearly displayed at a glance
- Sensors batteries status monitoring
- Preinstalled methods
- Customized test reports
- Results comparison

## SAMPLING TIME:

- BOD: from 2h to 48h, depending on the total test duration
- BMP: from 2h to 48h, depending on the total test duration
- Pressure: from 10 min to 48 h depending on the total test duration.

## MEASURING PERIOD:

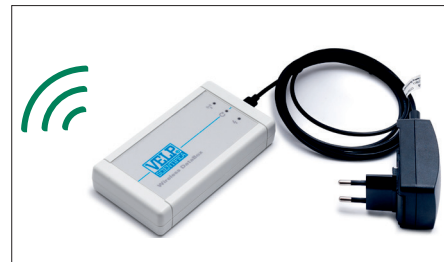
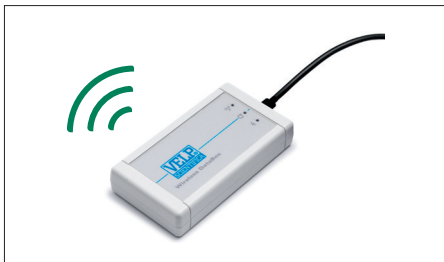
- BOD: from 5 to 30 days
- BMP: from 10 to 60 days
- Pressure mode: from 1 to 180 days



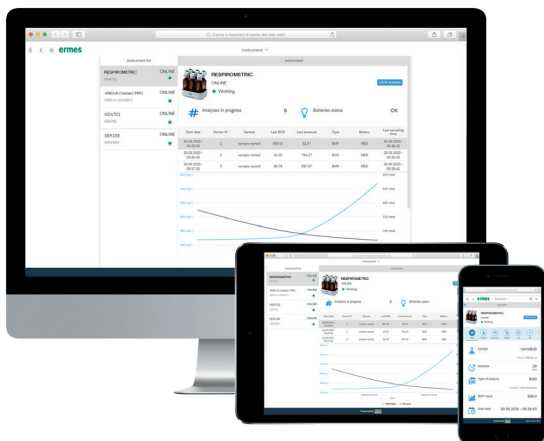
# Wireless DataBox™

The VELP DataBox™ is included in the Systems together with the RESPIROSoft™ Software and enables wireless data transmission from the RESPIROMETRIC Sensor to the PC. The DataBox™ store results for up to 48 RESPIROMETRIC Sensors (8 systems).

The DataBox™ comes with an integrated Wi-Fi module to transmit data from the sensors to the VELP ERMES Cloud Platform. It is also possible to connect the DataBox™ to a plug and send the data to VELP Ermes without the need to connect it to the PC (after starting the analysis from the software).



## VELP ERMES CONNECTION



Connect the RESPIROMETRIC Sensor to the exclusive VELP Ermes Cloud Platform to improve your laboratory experience. The VELP Ermes Cloud Platform connection will unburden you from tedious tasks improving your lab productivity.

- Real time visualization of your analysis with graph, even on multiple locations from PC, Tablet and Smartphone.
- Real time instrument working conditions.
- Enhanced service and application support.
- Access to your analysis database anytime, anywhere.
- Create and share analysis report in multiple formats.
- Immediate event and alert notifications based on your settings (on platform and email).

**ermes enabled**

# The Right System for your Application

The VELP RESPIROMETRIC Sensor Systems contain all the required parts and accessories in order to be operational right from the start. VELP has designed different systems suitable for aerobic and anaerobic applications.

## RESPIROMETRIC Sensor System

### BOD AND OTHER AEROBIC RESPIRATION TESTS

The RESPIROMETRIC Sensor System is designed to be a versatile solution with minimum footprint for aerobic degradation tests for Industrial and Domestic water quality testing.

- Ideal for: BOD5, BOD7, BOD Ultimate, Assessment of disinfection on BOD.
- BOD scales: 90, 250, 600, 999, 4000 (higher values after dilution).
- Biodegradation of monomers application to study the microbial activities involved in the production plastics.
- Results reading in Pressure (millibar) and BOD (mg/l).

**Included in the system:** Stirring station, 500 ml amber bottles, KOH containers, stirring bars, DataBox™ and RESPIROSoft™ software.



## RESPIROMETRIC Sensor System MAXI

### BMP AND OTHER ANAEROBIC RESPIRATION TESTS

The RESPIROMETRIC Sensor System Maxi is designed to support anaerobic respiration studies to determine the Biochemical Methane Potential (BMP) of biomass. The BMP analysis studies the production of biogas from organic wastes mainly for Waste and Wastewater treatment and for Renewable Energy Production.

- Results reading in Pressure (millibar) and automatic conversion in BMP value (NmLCH4/gSV)
- The system is suitable also for other anaerobic studies such as Denitrification Tests (Requires 6 Denitrification glass bottles A00000410).

**Included in the system:** Maxi stirring station, 1000 ml bottles, KOH containers, stirring bars, DataBox™ and RESPIROSoft™ software.



## RESPIROMETRIC Sensor System for Plastic Biodegradability

### AEROBIC BIODEGRADABILITY OF PLASTICS

The RESPIROMETRIC Sensor System for plastic biodegradability is designed to support aerobic degradation test for the determination of the degree of aerobic biodegradability of plastic materials, including those containing formulation additives, in an aqueous medium.

- Multistirrer Digital 6-positions to precisely set stirring speed and enable the lock feature to avoid unintentional modification of the stirring speed.
- Results reading in Pressure values (millibar).

**Included in the system:** Multistirrer Digital 6-positions, 6 Kits plastic biodegradability analysis, stirring bars, DataBox™ and RESPIROSoft™ software.



## RESPIROMETRIC Sensor System for Soil Analysis

### AEROBIC SOIL AND COMPOST RESPIRATION TESTS

The RESPIROMETRIC Sensor System for soil analysis is designed to support aerobic degradation tests on soil and compost. The analysis provides microbial soil respiration results from the mineralization of organic substances. A major application of these test is related to the detection and monitoring processes during decontaminations and clean-ups.

- The analysis is carried out directly on soil/compost in the 1000ml flask.
- Results reading in Pressure values (millibar).

**Included in the system:** 6 Kits soil analysis, DataBox™ and RESPIROSoft™ software.



## INSTRUMENT - CODE

RESPIROMETRIC Sensor System 6	230 V / 50-60 Hz	SA10200146
RESPIROMETRIC Sensor System 6	115 V / 60 Hz	SA10210146
RESPIROMETRIC Sensor System 6 no Databox™	230 V / 50-60 Hz	SB10200146
RESPIROMETRIC Sensor System 6 no Databox™	115 V / 60 Hz	SB10210146
RESPIROMETRIC Sensor System 6 Maxi	230 V / 50-60 Hz	SA10200156
RESPIROMETRIC Sensor System 6 Maxi	115 V / 60 Hz	SA10210156
RESPIROMETRIC Sensor System 6 Maxi no Databox™	230 V / 50-60 Hz	SB10200156
RESPIROMETRIC Sensor System 6 Maxi no Databox™	115 V / 60 Hz	SB10210156
RESPIROMETRIC Sensor System for Plastic Biodegradability	100-240 V / 50-60Hz	SA102A0166
RESPIROMETRIC Sensor System for Plastic Biodegradability no Databox™	100-240 V / 50-60Hz	SB102A0166
RESPIROMETRIC Sensor System for Soil Analysis	-	SA102B0176
RESPIROMETRIC Sensor System for Soil Analysis no Databox™	-	SB102B0176

## OPTIONAL ACCESSORIES

Multi-socket extension cable EU	A00000221
Multi-socket extension cable UK	A00000222
Multi-socket extension cable AU	A00000223
USA plug for power supply	10003083
UK plug for power supply	10003084
AU plug for power supply	10003085
VELP Ermes 1 Year Connection	E00010012
VELP Ermes 3 Year Connection	E00010036

## TESTING ACCESSORIES



**A00000135**  
Sensor check

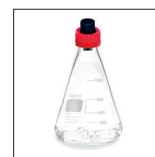


**A00000136**  
Control Test tablets

## BOTTLE & KITS



**A00000419**  
Kit plastic biodegradability analysis



**A00000418**  
Kit Soil Analysis



**A00000410**  
Denitrification glass bottle



# TECHNICAL DATA

	RESPIROMETRIC SENSOR
NUMBER OF SENSORS PER SYSTEM	6
SENSOR DISPLAY	4-digit LED display
MEASUREMENT	Electronic pressure sensor
TEST TYPOLOGY	BOD (mg/l), BMP (NmLCH4/gSV), PRESSURE (millibar)
PRESSURE RANGE	500 ÷ 2000 mbar (hPa)
BOD SCALES	90, 250, 600, 999, 4000 ppm, Higher values after dilution
BOTTLE VOLUMES	500 ml and 1000 ml
DATABOX SENSOR CAPACITY	Up to 48 RESPIROMETRIC Sensor
DATABOX POWER SUPPLY	USB / Plug
CONNECTIVITY	RESPIROSoft™ via USB / Ermes via Wi-Fi
SAMPLING TIME	BOD: from 2 h to 48 h, depending on test duration BMP: from 2 h to 48 h, depending on test duration PRESSURE: from 10 min to 48 h depending on the total test duration
MEASURING PERIOD	BOD: from 5 to 30 days BMP: from 10 to 60 days PRESSURE: from 1 to 180 days
DATA STORAGE	On Sensor, RESPIROSoft™ Database, Ermes Cloud
SENSOR CONSTRUCTION MATERIAL	Technopolymer
SENSOR DIMENSIONS (WXHXD)	50x70x70 mm (Sensor)
SENSOR POWER	2 W
SENSOR BATTERY TYPE	CR 2430
STIRRING STATION POWER SUPPLY	Stirring Station: 230 V / 50-60 Hz or 115 V / 60 Hz Stirring Station Maxi: 230 V / 50-60 Hz or 115 V / 60 Hz Multistirrer Digital 6: 100-240 V / 50-60 Hz
STIRRING STATION DIMENSIONS (WXHXD)	Stirring Station: 270x300x185 mm Stirring Station Maxi: 432x300x165 mm Multistirrer Digital 6: 230x51.5x370 mm
WEIGHT	Sensor: 80 g Stirring Station: 1 Kg Stirring Station Maxi: 3 Kg Multistirrer Digital 6: 1,75 Kg
SAFETY CLASS	IEC/EN61010-1
SENSOR PROTECTION DEGREE	IP 54-EN 60529



## SERVICE & SUPPORT

VELP Scientifica products are designed by our engineers to resist years of laboratory use.

Our products are manufactured with premium materials to guarantee the best performance with maximum safety.

According to our experience, a proper and regular maintenance is necessary to ensure the highest performance of analytical instrument.

VELP Service Department and VELP Official Partners are always ready to offer you maintenance and service support tailored to your needs.

### GET THE SUPPORT YOU NEED CHOOSING THE OPTIONS:

- Installation
- Preventive Maintenance
- Help-desk and Remote support
- Technical Assistance
- Analytical Support
- Calibration Certification



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VELP Official Partner

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