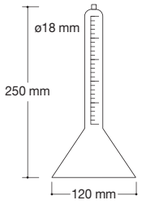
Options (as an extra-cost option)

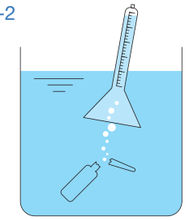
Small headspace (such as ampoule) gas can be measured. Also the gas volume can be measured at the same time.

■ Gas collecting tube made of glass: GS-2



Measuring procedure

Uncap the bottle in water to collect the sample gas in the headspace, and feed into the housing of PACK MASTER.



Total gas volume: 20 mL
Minimum scale value: 0.2 mL

*Please note that the dimensions of the actual glass tube can differ slightly from the dimensions indicated because the tube is made of glass.

*Because the pressure inside the glass tube is different from atmospheric pressure, the (optional) Pressure/decompression Sampler is required.

*Other dimensions are also available.

Using opener, it can easily measure the residual oxygen in the headspace such as PET bottle and a can.

■ Opener (for PET bottles): KO-X1

Measuring procedure

Turn the rotation lever to make a hole in the PET bottle cap to allow the sample gas inside the headspace to move into the housing of PACK MASTER.

Cap height: 16 (mm) min. ~ 35 (mm) max.
Neck diameter: ø22 (mm) min. ~ ø36 (mm) max.

■ Can opener: KO-1

Measuring procedure

Use the cutter to make a hole in the can to allow the sample gas inside the headspace to move into the housing of PACK MASTER.

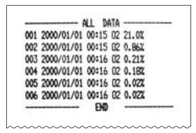
Can diameter: ø45 (mm) min. ~ ø155 (mm) max.

*Using the opener requires the (optional) Pressure/decompression Sampler because the pressure inside the can is different from atmospheric pressure.

Simply connect the printer and press the Measure button. The printer then automatically prints the measured values.

■ Printer (cable/as an extra-cost option): CBM-910Ⅱ-40

Printout sample



Specifications

Product Name	Residual Oxygen Meter “PACK MASTER”
Model	RO-103
Type of measurement	O_2·DO: Electrochemical (Diaphragm-type galvanic cell) Water temperature: Semiconductor temperature sensor
Type of display	LCD digital indicator
Information displayed	O_2, gas replace rate, DO, saturation rate, water temperature, remaining battery level, error messages, and calibration count
Range of measurement	O_2 : 0.00 ~ 9.99% O_2 10.0 ~ 25.0% O_2 Automatic range switching 0.0 ~ 25.0% O_2 Resolution can be selected Gas replace rate: 0.0 ~ 100.0% DO: With the (optional) DO measurement apparatus 0.00 ~ 9.99mg/L, 10.0 ~ 20.0mg/L } * Automatic range switching *Restricted within the measurement range for dissolved oxygen saturation rate Dissolved oxygen saturation rate: 0.0 ~ 200.0% Water temperature: 0.0 ~ 40.0°C
Measurement accuracy (Measurement under certain condition before shipment.)	0.00~0.99% O_2: ±0.03% O_2 1.00~9.99% O_2: ±0.09% O_2 10.0~25.0% O_2: ±0.2% O_2
Device accuracy (for display only)	O_2 : ±0.03% O_2 (Measurement under constant temperature.) DO: ±0.03mg/L (Measurement under constant temperature.) Water temperature: ±0.1°C
Measurement time	O_2 : 6 seconds*1 DO: 99% response within 40 second after the stirring starts*2
Output	Serial communication output Connectable to a printer or an external device through RS-232C.
Calibration method	O_2 : One-touch calibration with air DO: One-touch calibration with saturated water or air
Features	Self-diagnosis feature: Sensor life (sensor replacement timing notification), Value stability check timeout, and Sensor instability detection Automatic stability assessment feature: Holds the value and indicates it when the value becomes stable. Built-in clock
Operating temperature range	0 ~ 40°C (without condensation for O_2 measurement)
Power requirements	4 AA-sized alkaline batteries (DC 6V), or 100V AC adapter
Dimensions	Main unit: 170 (W) × 123 (D) × 72 (H) mm (except the protrusions)
Weight	Approx. 650g (include batteries)

*1. Shortest time when multiple samples are automatically measured in sequence using the (optional) Quick Sampler configured to indicate O_2 data with a resolution of 0.1%.

*2. Values achieved where measurements are continuously made for the same sample at a constant temperature using the (optional) DO measurement apparatus [MA-300].

*Depending on the sample, the required specification must be preliminarily determined.

*If the target gas includes CO_2, it makes the measured values unstable or accelerates deterioration of the sensor. We provide models that are not susceptible to CO_2. Fordetails, please contact your supplier.

Contents

- Manual with Warranty
- WAGNIT (oxygen sensor)* Model: WA-SGF
- AA-sized alkaline batteries*
- AC adapter (DC 6V output)
- Needle (for replacement) × 5 Additionnal order: NN2138S (12 pieces)
- Needle receptacle
- Adhesive rubber (20mm × 100mm × 1t) × 20 Additionnal order: RG-1 (100 pieces)
- Maintenance kit

* Already mounted inside the PACK MASTER

The designation “oxyeye” is the nickname for our oxygen analyzers. As the eye for analyzing oxygen, we hope you will continue to use oxyeye products regularly for many years to come.

*Please note that the specifications are subject to change without notice for product improvement.
(Sep. 2014)

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JVAC-QM0693 ISO9001:2008certificated JAB CM040

ISO 9001: 2008 certificated

Dealt by:

Printed in Japan Sep. 2014

VEGETABLE OIL INK

Residual Oxygen Meter

oxyeye PACK MASTER®

We named the product PACK MASTER in the hope that it would help engineers control the oxygen remaining in packaged products.
“PACK MASTER” is a registered trademark of Iijima Electronics Corporation for a Residual Oxygen Meter.

Model: RO-103

PACK MASTER takes measurements more quickly, easily, and accurately.

*This device is optionally available (as an extra-cost option).

Quality Assurance Standard
ISO9001
Certification acquired.

At Iijima Electronics, we have acquired certification on the quality assurance international standard for delivering high quality products to our users.

IIJIMA ELECTRONICS CORPORATION

PACK MASTER® allows you to easily check for any oxygen remaining in bagged products, PET bottles, and cans. The device can also measure dissolved oxygen.

Automatic measurement with the single touch of a button!
Simply press the [Measure] button because PACK MASTER is equipped with a built-in suction pump.

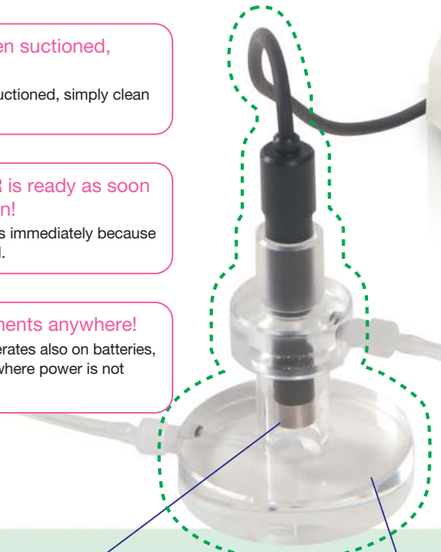
If liquid has been suctioned, don't panic!
If liquid has been suctioned, simply clean and use again.

PACK MASTER is ready as soon as it is turned on!
Start measurements immediately because no idling is required.

Take measurements anywhere!
PACK MASTER operates also on batteries, allowing use even where power is not available.

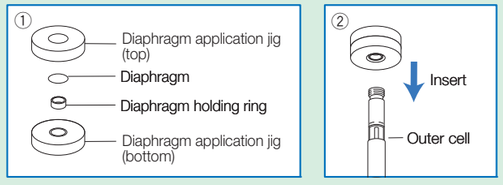
Measuring procedure

*The actual products are subject to change for improvement.



Easily maintainable oxygen sensor (WAGNIT)

A purpose-built diaphragm application jig is available, which allows easy replacement of the diaphragm.



Apply the diaphragm by simply placing the diaphragm in the purpose-built jig and then inserting the jig around the outer cell.

DO measurement apparatus: MA-300

Option (as an extra-cost option)

PACK MASTER can make DO measurements at the same time.

Measure dissolved oxygen in beverages by simply connecting the DO meter to the main unit.

Housing for accurate measurements

Take measurements without moving the sample to another container, which prevents the sample from being exposed to air. This provides accurate measured values.

MA-300 can measure a small amount of samples.

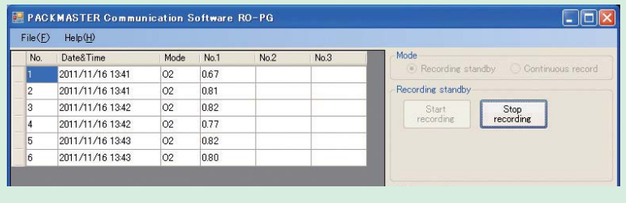
The minimum sample quantity required for measurement is 10 cc.

Communication software: RO-PG

Option (as an extra-cost option)

The RO-PG is useful if you take the time to prepare reports!

Automatic recording of data is possible using the dedicated communication software in order to use the data as a source for a report. Keeping or managing of data and searching for required data can be easy.



Export data to spreadsheet software for easy report preparation.

With the main unit connected to a PC,*1 press the measurement button to automatically transfer data.

*1 The connection to a PC requires serial ports (RS-232C). If the PC is not equipped with an RS-232C port, then use a USB/RS-232C converter.

Experience reduced operation time and reliability.

PACK MASTER greatly shortens operation time.

- PACK MASTER automatically executes the suction process. Simply press the [Measure] button to start the measurement.
- The automatic stabilizing feature holds the measured value when it becomes stable. This eliminates the need to read the measured value, allowing operators to work with two units at the same time.

PACK MASTER is easy to operate and equipped with a galvanic oxygen sensor (WAGNIT®) resistant to combustion.

- The hard cover and the diaphragm protection structure retracted by 1 mm to completely eliminate flaws and wrinkles from the diaphragm, which determines up to 40% of the useful service life. This allows easy handling of the PACK MASTER without extra attention.
- By adjusting the components of the electrolytic solution inside the WAGNIT to delay precipitation, we successfully extended the service life of the WAGNIT. In addition to the changes to the electrolytic solution, we changed the material of the electrode mount to ceramic to increase response speed.
- Because PACK MASTER operates on galvanic cell type, it can measure even samples that include combustible gas from alcohol or coffee beans or combustible gas by-products from a deoxidizer. (A zirconia device may indicate a lower measured value)

PACK MASTER requires a minimum sample quantity.

The minimum sample quantity required for measurement is 3 cc. Even for stick packs with a small volume of gas, only one sample is required for the measurement.

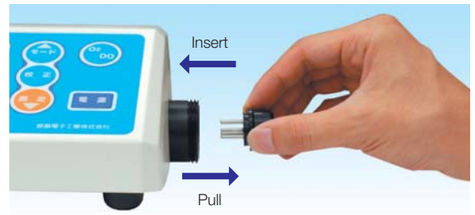
*The gas volumes indicated are minimum amounts required in cases where measurements are made for multiple samples in a row with the main unit pumping rate set to the minimum value.

Suppose measurements are taken for 100 bagged products a day…

	PACK MASTER + Quick Sampler	Conventional products
Measurement time/bag	10 seconds	60 seconds
Measurement time for 100 bags/day	17 minutes/day	100 minutes/day
Measurement time/month	Approx. 6 hours/month	Approx. 33 hours/month

PACK MASTER saves up to 27 hours per month!

WAGNIT replacement (one-touch simple operation)



"WAGNIT®" is a registered trademark of Iijima Electronics Corporation for an oxygen sensor.

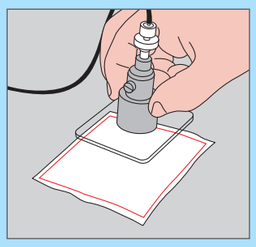
Quick Sampler: PO-1

Option (as an extra-cost option)

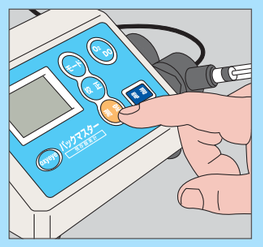
*The Quick Sampler PO-1 shown in the photograph is under development, which may be different from the actual product.

Bothersome work for attaching the adhesive rubber and inserting the needle into the adhesive rubber can be avoided.

<How to use the PO-1>



(1) Simply place the PO-1 on a sample.



(2) Press the [Measure] button to start the measurement.

Quick Sampler takes measurements simply by placing the device on a sample where it makes a small hole. Quick Sampler is also equipped with a special adhesive sheet that prevents gas leakage from samples. This eliminates the need for using adhesive rubber, shortening the operation time and reducing costs.

*The Quick Sampler may not work for vacuum packs or rough textured packaging materials. If this is the case, consider consulting the suppliers.

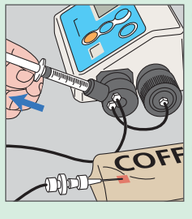
Pressure/decompression Sampler: S-2

Option (as an extra-cost option)

Sampler S-2 can take measurements of vacuum packs, PET bottles, cans, and other packages that are internally pressurized or depressurized.

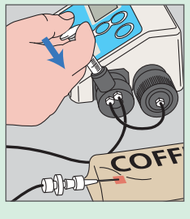
Sampler S-2 provides a wide range of sample measurements for vacuum packs, PET bottles, cans, and other packages that are internally pressurized or depressurized. In addition, it provides improved workability.

<How to use the S-2>



(1) Affix adhesive rubber to the sample and insert the injection needle. Position the cock to "Suction" and pull the syringe.

(2) Position the cock to "Neutral" to achieve normal pressure.



(3) Position the cock to "Release" and press the syringe.

(4) Repeat two or three cycles of "Suction", "Neutral", and "Release" to complete the measurement.