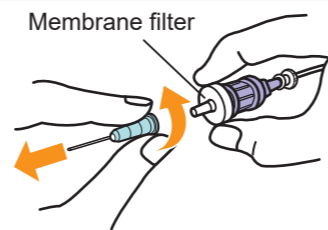


5. Replacing the needle

* Order the needle (Model:NN-2116R-12 / vertical hole type, 12-pc. set)

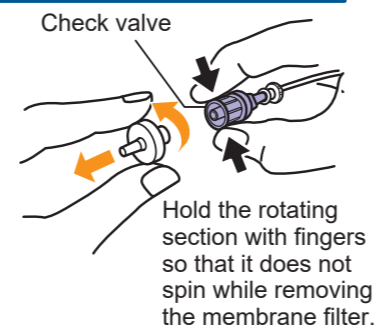
- Remove the needle from the membrane filter.
Dispose of the spent needle according to local rules. It cannot be reused.
- Attach a new needle.



6. Replacing the membrane filter

- Remove the needle from the membrane filter.
- Remove the membrane filter from the check valve.
- Attach the new membrane filter.
- Attach the needle.

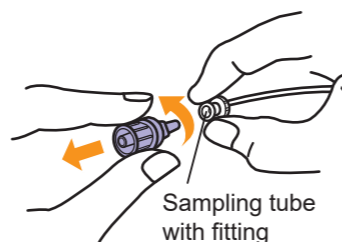
* Order the membrane filter (RO-MF, 5-pc. set)



7. Replacing the check valve

- Remove the membrane filter and needle from the check valve.
- Remove the check valve from the sampling tube with fitting.
- Attach the new check valve onto the sampling tube with fitting.
- Attach the membrane filter and needle.

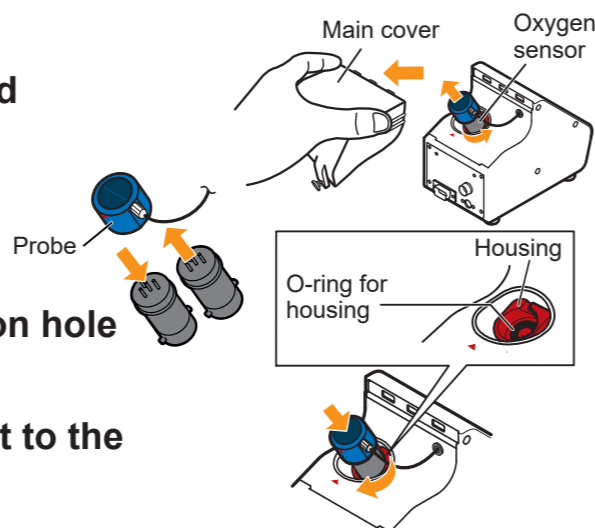
* Order the check valve (RO-CV, 3-pc. set)



7. Replacing the oxygen sensor

* Order the oxygen sensor (WAGNIT® Model:WA-SGF).

- Remove the main cover.
- Turn the sensor counterclockwise and pull it straight out.
- Pull the sensor out of the probe.
At this time, confirm that the O-ring for housing is properly mounted on the groove.
- Align the new sensor with the insertion hole on the probe, and insert it.
- Turn the sensor clockwise and align it to the ▲ mark on the housing.
- Mount the main cover.



Residual Oxygen Meter

PACK KEEPER
Model:RO-105KS

PACK MASTER®
Model:RO-105S

Residual Oxygen / Carbon Dioxide Meter

PACK LEADER
Model:RO-105LS

Handy User's Guide

<Note> This is a handy user's guide. Please refer to the instruction manual enclosed with the product for more details on the operation and precautions.

<Handling and Maintenance Information> Information and videos on this product's handling methods and maintenance, etc., are available on the IJIMA ELECTRONICS website.



1. Calibrating the span

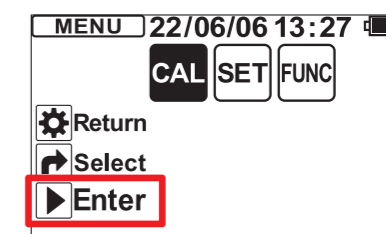
- Once a day, calibrate the span before taking the first measurement. (There is no need to calibrate before each measurement.)
- Ideally, calibrate when the oxygen sensor temperature and temperature sensor temperature are sufficiently stable, such as first thing in the morning, indoors before turning on the air-conditioning.

- Release the needle to the atmosphere.

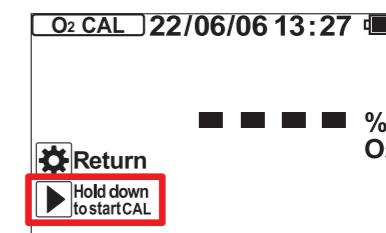


- Press .

The Menu screen opens.

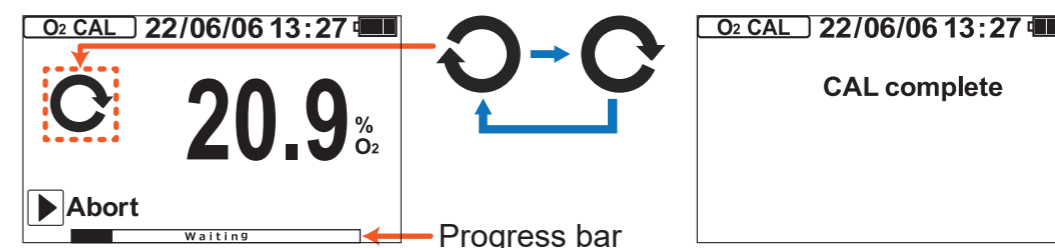


- Press .



- Hold down  for 1 second or longer.

The calibration starts, and the Stability Decision screen opens. A beep sounds, "CAL complete" appears (approx. 1 second), and then the O₂ MEASURE screen opens. The calibration process is completed.



The calibration value is saved even if the power is turned OFF, the batteries are removed, or AC adaptor is disconnected. If the "Sensor Error" message appears, refer to the section "Error Messages" in the operation manual enclosed with the product, and confirm and remedy the situation.

2. Measurement

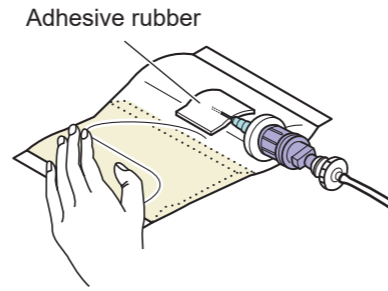
* Only the PACK LEADER (RO-105LS) can simultaneously measure and display the O₂ concentration and CO₂ concentration.

1. Attach enclosed adhesive rubber over the air space, and insert the needle.

Do not suction the contents.

A measurement error will occur if powder, etc., gets clogged in the needle.

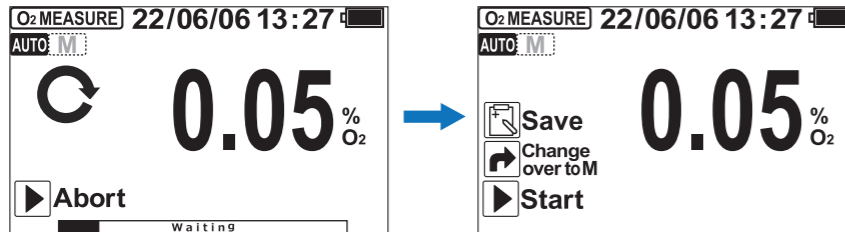
Note that the minute amount of liquid in the sample gas is blocked by the membrane filter.



2. Press



The measurement is completed when a beep sounds and the stabilized measured value appears.



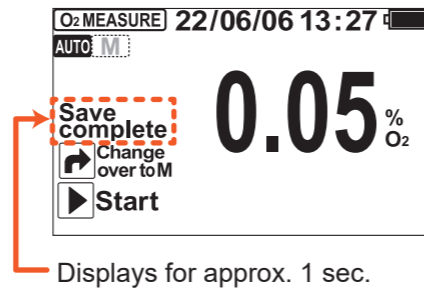
3. Recording the measured value

* Only the PACK LEADER (RO-105LS) can simultaneously record the O₂ concentration and CO₂ concentration.

Memory function

Press on the Measurement Complete screen.

The measured value for which the stability has been automatically decided is saved in the internal memory.



Confirming the measurement history

1. When the Measurement Standby screen is displayed, press



The HISTORY screen opens.

No. (sorted by date and time)	Date and time of record	Measured value
001	13:20 06/06	0.09%
002	13:10 06/06	0.07%
003	13:00 06/06	0.02%

- When is pressed, the older data is displayed three items at a time.
- To delete a record, such as when a measurement value has been accidentally saved, hold down on the HISTORY screen for 1 second or longer. The contents of the data saved last are erased from the internal memory.

4. Checking for clogging

If the value fluctuates and does not stabilize, or if the "Negative pressure detected" error message appears, the needle or tube, etc., may be clogged. Follow the steps below to check for clogging.

The clogging check makes a decision using the pressure sensor that is built into the gas path. The presence of a clogging at each part of the gas path can be decided.

Gas pressure used as judgment guide

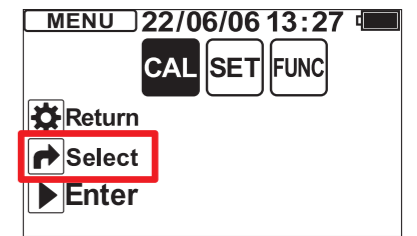
If the gas path is completely clogged	Approx. -40kPa
If the gas path is not clogged	0 to -5kPa

1. When the Measurement Standby screen is displayed, press



displayed, press

<Menu screen>

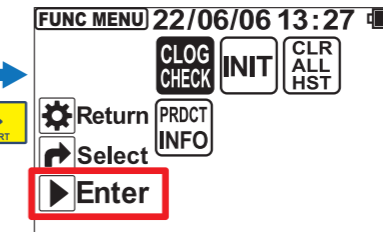
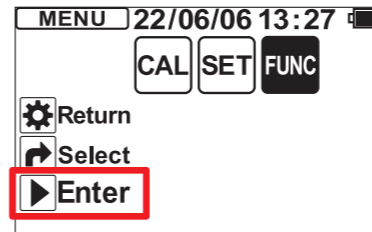


2. Press twice and then press

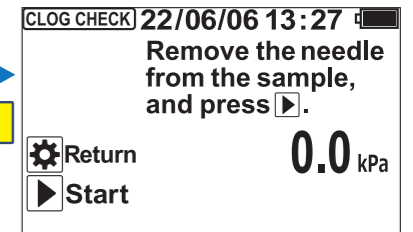


twice.

<Menu screen>



Example of <CLOG CHECK> screen

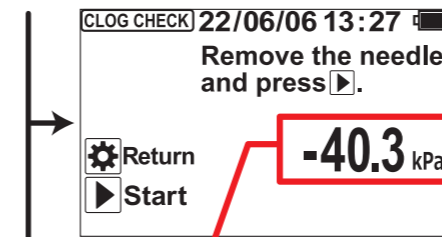


3. Expose the tip of the needle to the atmosphere.

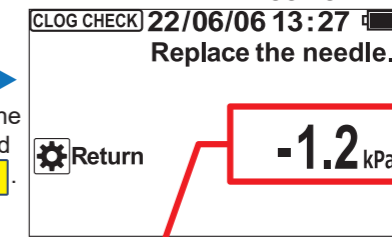
4. Press



The pump operates for 5 seconds and decides whether there is clogging, and the results are displayed.



Negative pressure is displayed when needle is installed.

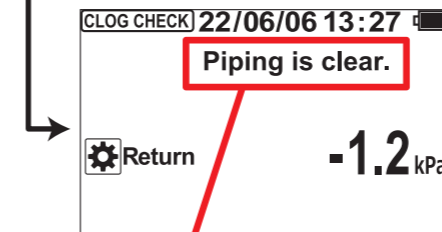


The negative pressure is resolved when the needle is clogged.



It can be decided that the needle is clogged.

Replace the needle with a new one. (Refer to sections 5 to 7.)



"Piping is clear." display

It can be decided that the gas path is not clogged.

It can be decided that there is no clogging, that the sample has a negative pressure lower than -40kPa, or that there is another cause. → Refer to the "Troubleshooting" and "Error Message" sections in the instruction manual enclosed with the product.