Pure H_2 and O_2 Generator

Operational Manual

Newest MEA/PEM technology

Model: HB-H11 (H_2 only),

HB-H12 (H_2 and O_2)

Congratulations *on your purchase of the Hydrogen (H_2) and Oxygen (O_2) generator. You have just acquired the world's most advanced and efficient technology for the production of Hydrogen and Oxygen mixed gas on-demand.*

Your H_2 and O_2 generator comes completely assembled and ready for use. It has been thoroughly tested prior to shipment, so there may be moisture in the H_2 and O_2 generator. This is normal.

Read before using the H_2 and O_2 generator for the first time

1. Please read the manual carefully before using this generator.
2. Only high-quality distilled water and reverse osmosis water are suitable for this generator (TDS < 3ppm).
   a. Water electric resistivity > 2 megaohm.cm or
   b. Electric conductivity<0.5us/cm
   c. Do not use alkali liquid (KOH nor NaOH)
3. WARNING - Never use tap water! It will damage the hydrogen cell and void the warranty.

WARNING:

This H_2 and O_2 generator splits water (H_2O) into its Hydrogen and Oxygen parts. Hydrogen at high concentration is an extremely explosive gas. The Hydrogen from the generator dissipates very rapidly into the surrounding air (less than 5%). This makes its concentration level safe so it won't explode. But at the right concentration it can explode.

NEVER use in the presence of open flames or where sparks may occur. NEVER Smoke when using this device.

Failure to follow these instructions can irreversibly damage the H_2 and O_2 generator, voiding the warranty and may cause personal injury. All precautions have been taken to make this H_2 and O_2 generator safe for you to use. However, if you abuse it and ignore these warnings, injury may occur. Please use Common Sense.

4. If the generator is going to be stored for some time, keep some distilled water in the generator tank. Or if generator hasn't been used for a long time, pour some distilled water into the tank and wait for 24 hours before turning the power on. Never allow the generator to be dry for more than 3 months.

5. Changing the distilled water frequently will help maintain the generators working life as the distilled water can become stale after some time. It is recommended to change the water every 20 hours of use or every 2 weeks, whichever comes first (based on 1 to 2 hours of use every day).

6. Use the generator only in well ventilated areas, don't use it in a small confined space.

7. Drain water out before transporting the generator.

8. DO NOT open case or disassemble electrolysis cell. This will void the warranty.

9. There may be a small amount of water in the packaging when the generator arrives. The tubes inside the generator may still have water in them from when the generator was tested before leaving the factory.

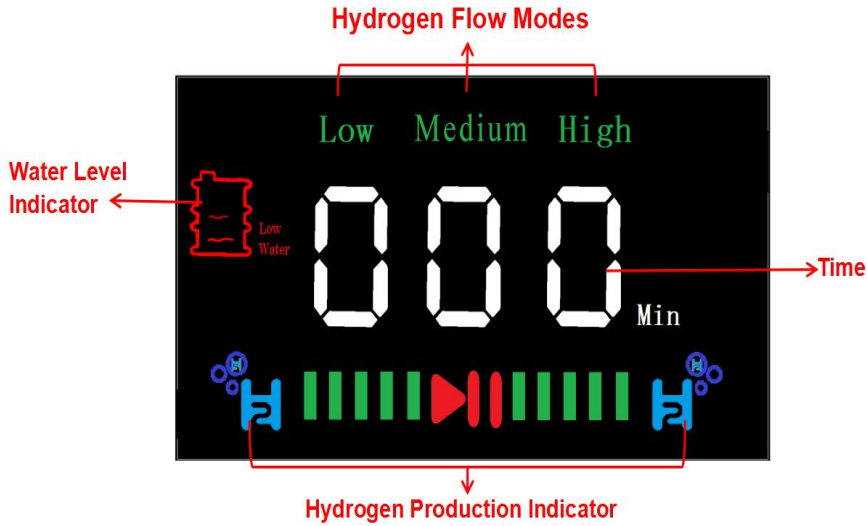
Specification

Hydrogen purity:	99.99%
Max Hydrogen flow:	310 ± 10 ml/min
Oxygen purity:	99.9% (Model HB-H12 only)
Max Oxygen flow:	150 ± 10 ml/min (Model HB-H12 only)
H_2 Output pressure:	0.2 MPa
Input Pure Water:	Distilled water (TDS<3ppm)
Pressure stability:	< 0.001Mpa
Power:	100-220V ± 10%, 50Hz-60Hz
Power consumption:	< 155W
Dimension:	260 (w) x 300 (d) x 325mm (H)
Weight:	5.9kg (Main body)

Parts Diagram

1. Pure water inlet (water tank cap)
2. Display screen
3. START/PAUSE button
4. STOP button
5. SETTING button
6. Hydrogen flow indicator
7. Handle (both sides)
8. Hydrogen and Oxygen gas outlets
9. Water level indicator window
10. Power on/off Switch
11. Adapter power line socket
12. Water drain outlet
13. Oxygen pressure relief outlet

LED Display



Instructions

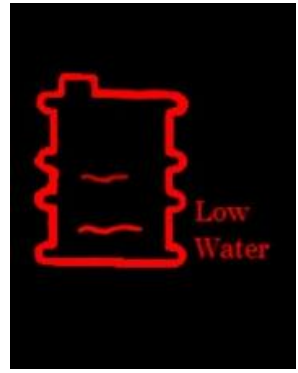
1. Take generator out of packaging, check equipment for any damage during transport. Package contains the following:

2. Open the water tank cap, fill until the water level indicator is between HIGH and LOW marks (1.5 liters will give you approximately a half-filled tank).

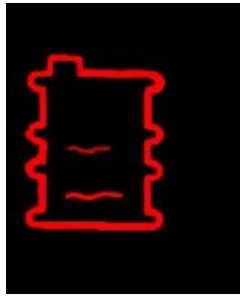
   Add the distilled water and wait for 60 minutes before using for the first time, this is to soak the electrolytic plate.

3. Connect power cord with adapter and plug in. Turn on the power switch (red switch on the back of generator). The LED display will light up. The generator is now in standby mode.

4. If the **water level is below the low-level mark** then an alarm will sound. Add distilled water into the water tank so the water is above with low water level mark. The alarm will then stop.



5. If the **water level is above the high-level mark** then an alarm will sound. Attach the drain tube to the outlet on the back of the generator, drain excess water out into a bucket (not supplied) until the water level is below the high-water level mark. The alarm will then stop.



6. **<u>Setting the timer</u>** Pressing the SETTING button once adds 10 minutes to the timer, each press of the SETTING button will increase the timer by 10 minutes. The maximum the timer can be set for is 180 minutes.

7. **Set hydrogen flow rate**: There are 3 modes (Low, Medium and High) for the hydrogen flow, Low is 110 ± 10 ml/min, Medium is 210 ± 10 ml/min, High is 310 ± 10 ml/min. Keep pressing the SETTING button for 3 seconds to adjust the mode. Default mode is set to High.

8. Remove any protective covers on the H_2 and O_2 outlets.

9. Press the START/PAUSE button to start the generator working. The hydrogen production indicator light on the display panel will come on.

10. Pressing the START/PAUSE again will PAUSE the generator. When timer is finished counting down, generator will stop and return to standby mode.

11. NOTE: It is possible to have a small amount of water flowing out of the H_2 outlet, or vapour condensing inside nasal cannula during the first few uses. This is normal because the residual distilled water left over from testing the generator in the factory. Just drain out before using.

12. Connect the single inlet nasal cannula to either the Hydrogen (H_2) or Oxygen (O_2) outlet. Or use the Y-connector to get both H_2 and O_2 simultaneously (browns gas).

13. WARNING:

    a. H12 model - DO NOT plug both Oxygen outlets, or the Hydrogen outlet. Plugging or blocking off both Oxygen outlets will cause the pressure inside the hydrogen cell to increase; This will cause damage and the generator will stop working and Void the Warranty.

    b. H11 model - DO NOT plug the hydrogen outlet. Plugging or blocking the outlet will cause the pressure inside the hydrogen cell to increase and will cause damage. The generator will stop working and Void the Warranty.

14. Pressing the STOP Button will stop the Hydrogen and Oxygen production and the generator will go into standby mode. Pressing the START/PAUSE button will start the generator again.

Maintenance

Changing the distilled water frequently will help maintain the generators working life. The distilled water can become stale after some time. It is recommended to change the water every 20 hours of use or every 2 weeks, which ever comes first (based on 1 to 2 hours of use every day).

Replacing the water

1. Connect the drainpipe with water drain outlet (on the back of the generator), the water will drain out automatically. Have a bucket or bottle ready before you start (3 litres).
2. Add new distilled water (1.5 litres), wait for 5 minutes then drain again. Repeat 2 times (use the same distilled water). Then discard the water.
3. Add New clean distilled water.

Storing

If the generator is not going to be used for a period of time, then keep some distilled water in the tank.

When you want to use it again, drain the old water. Pour in 1.5 litres of fresh distilled water, wait for 5 minutes and then drain. Repeat 3-4 times, and then discard the water.

Finally add fresh distilled water. The generator is ready to use again.

Operational Conditions

Working temperature: 2°C to 40°C

Humidity: < 85%

Power supply: 100-220V ± 10%, 50Hz-60Hz

General Notes:

- ✓ The generators should be positioned horizontally.
- ✓ Do not shake or strike the generator.
- ✓ Do not expose generator to direct sun light or flames.
- ✓ Do not use it in dusty environments, avoid conducting particles, acid, alkaline, and/or any other corrosive gases.
- ✓ Use in a well ventiled area.
- ✓ Earthing connection of power supply is necessary for safety.

Trouble shooting

Problem	Reason	Solution
Not working, power light is off	1. Power not connected 2. Power adapter damage	1. Connect power 2. Replace adapter
H_2 outlet has no gas flow	1. Gas leakage in generator, or H2 connection pipe has a leak	1. Use soapy water, Check the connect position to see if there are bubbles. 2. Tighten leaking part.
Big difference in displays normal range	1. Electrolysis cell degradation 2. Abnormal power output	1. Replace or clean electrolysis cell 2. Adjust or change power supply
Consumes water quickly	1. Water leakage in circulation system 2. Cell high temperature	1. Repair water leakage 2. Replace or clean the degraded cell

After Sales Service

Warranty: 12 months parts and labour.

Warranty will be invalid in the following circumstances:

1. User DOES NOT operate the H_2 and O_2 generator according to this operating manual.
2. User disassembles or opens the H_2 and O_2 generator or dissembles any parts by themselves.

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