ALKALINE WATER ELECTROLYZER SYSTEM(1KW)

USER MANUAL

Http://www.lightbridge.co.kr

Office: (82) 31-5183-5228

Email:lightbridge.sales@gmail.com

Contents

1.Specification

Model name: LBEX-1K

Size: 300 X 520 X 500

Power consumption: <1kW

Gas production /h:

Hydrogen gas 200L

Oxygen gas 100L, respectively

Pressure: Max 10 barg

Operation Temperature: 10 ~ 80℃

Purity of gas: hydrogen gas 99.5 ~ 99.9%

Oxygen gas 98%

2.Component

① Graphic panel – It controls a hydrogen and oxygen generator while monitoring the overall system status.

② Electrode stack – As the key component for electrolysis, it electrolyzes water into hydrogen and oxygen.

③ V1,V2(Solenoid valve)– As an electric valve, the valve opens and closes due to ON and OFF of electricity. It also controls the emission of hydrogen and oxygen.

④ Gas/liquid separator – Its function is to separate hydrogen and oxygen.

⑤ PLC Control board – Controls the system operation.

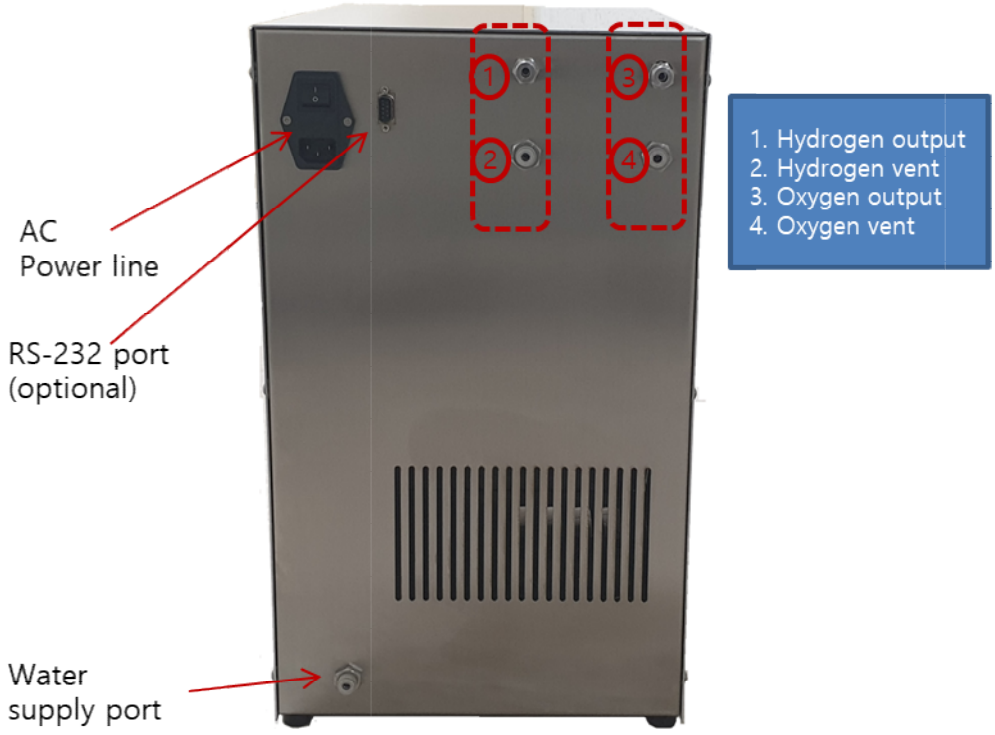
⑥ PSU(Power Supply Unit) – Provides DC power to the system.

⑦ CP(Circulation pump) – It circulates the electrolyte liquid into the stack and gas/liguid separators.

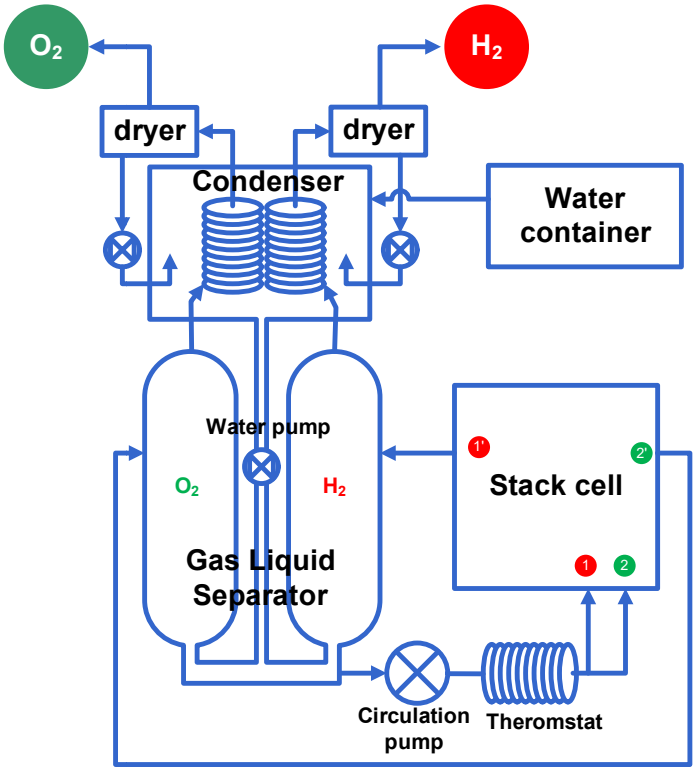
⑧ WP(Water pump) – It compensates externally the water consumption due to electrolysis.

⑨ WP-O(water supply pump) – It supplies external water when there is not enough water in the water tank.

⑩ PE(Peltier cooling system) – It cools the gas from water electrolysis.



3.System Schematics



4. Operation Method

① Power ON

Plug in power

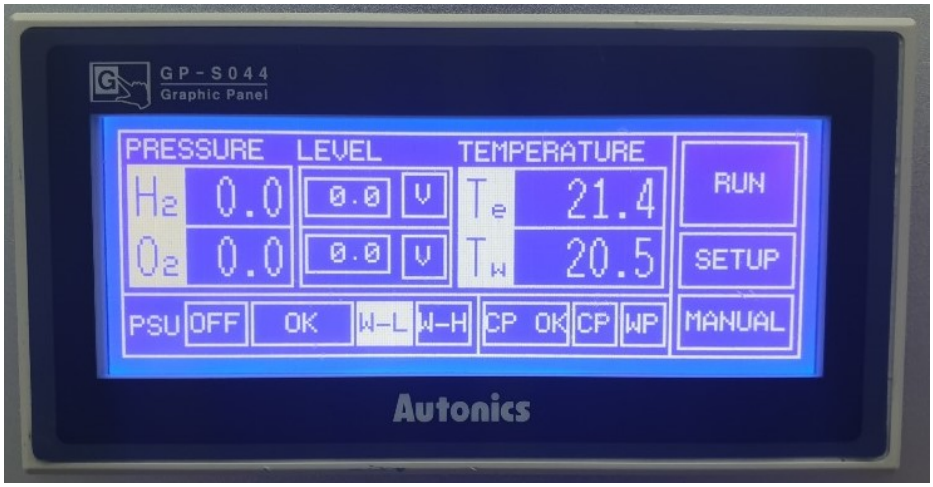
② Graphic panel activation

Press the power button on the back of the instrument.

③ Display switch

Press the screen of the logo display to switch to the main display.

④ Main display



Pressure of H_2 and O_2 indicates pressure of hydrogen and oxygen. LEVEL indicates the solution level of the gas/liquid separator. W-L indicates the low water level, and H indicates the high water level.

V indicates turn on, off status of the vent valve.

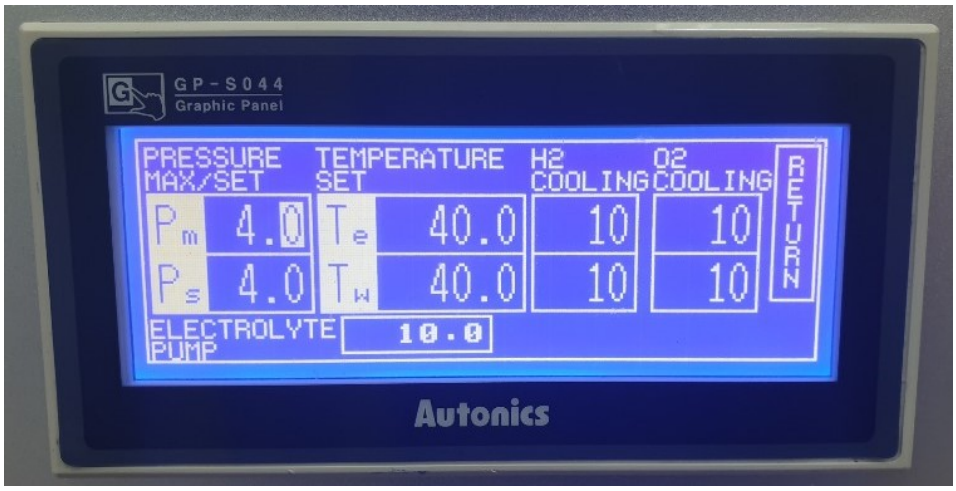
(If the separator of the hydrogen side has high solution level and the separator of the hydrogen side has low solution level, the vent valve of the oxygen side will open to balance the solution level.)

T_w represents the water temperature in water tank.

T_e represents the electrolyte solution temperature.

If the panel shows 'STOP', electrolysis action will stop. By pressing 'STOP', it will change to 'RUN' and electrolysis action will start.

⑤ Setup Display



To configure the setup mode, press 'SETUP' to enter the setup menu. P_m represents the maximum pressure. The maximum pressure the can be handled may be set before emitting the residual pressure.

Due to the safety reason, if the pressure exceeds the designated value of the bar unit, the gas will emit automatically. P_s represents the set pressure. When the pressure reaches the designed value of the bar unit, the system will stop automatically. T_w sets the water temperature in water tank. $T_s$sets the

electrolyte solution temperature. If either of them reaches the designated temperature, Cooling system will be operated. H2 and O2 COOLING setthe turn on and off time of the vent valve. The unit is 100ms. ELECTOLYTE PUMP sets pump operation time when the system turns off.

To go back to the main display press 'RETURN'.

⑥ Manual Display

In the manual mode (by pressing 'MANUAL'), individual components of the system can be controlled manually.

V1: Hydrogen vent valve

V2: Oxygen vent valve

VL: Simultaneously operates V1 and V2

CP: Circulation pump

PE: Peltiercooling system

WP: Water pump

WP-O: External water supply pump

PSU(Power Supply Unit): During the electrolysis action, The 'OFF' indication changes to 'ON'

⑦ System Power off

In order to turn off the system, press the VL button to completely vent out the gas. Then, press the power switch until the system completely turns off.

4. Cautions

- Make sure electrolyte solution (KOH) does not contact with the skin.
- After the use, turn off the system by setting the pressure to 0 after venting hydrogen and oxygen.
- Do not lay the electrolyzer by side or upside down.
- Do not disassemble or open the product.
- Please set the generation pressure of hydrogen and oxygen at least to 5 bar.
- Do not allow the setting of the electrolyte temperature to be above 80℃.
- If the electrolyte solution leaks, stop the operation and ask for customer support.
- Always keep the water supply port in the water filled container.