

# E500 Series

## Electrolyzer Cell Test System



### Product Introduction

E500 series electrolyzer single cell test system is mainly aimed at material level research, development, and validation testing for water electrolysis that includes boundary performance testing, stressor condition testing, electrochemical testing, and durability testing. The electrolyzer single cell test system has the characteristics of high-accuracy data acquisition and fast response, which can meet the testing requirements of PEM&ALK&AEM electrolyzer.



Polarization curve



EIS testing(optional)



Online detection of  
hydrogen concentration



Stressors testing



Durability testing



Energy efficiency of  
hydrogen generation



Quality test of  
hydrogen generation



Life testing

### Product Features

- Support the testing requirements for electrolyzer proposed by EU JRC.
- Wide range and high accuracy: water flow(1% F.S.), water temperature( $\pm 1^{\circ}\text{C}$ ), electrical conductivity( $\leq 0.5\mu\text{S/cm}$ ), gas flow rate (1% F.S.), and backpressure(max. 5MPa).
- Gas processing: cooling, drying, and filtering.
- High accuracy online measurement of gas flow rate(dew point temperature  $\leq -40^{\circ}\text{C}$ ).
- Rapid sampling analysis of anode gas or cathode gas.
- Complete hardware protection functions: hydrogen leakage, abnormal temperature, manual emergency stop, emergency exhaust, oxygen in hydrogen, hydrogen in oxygen, independent safety unit.
- Support electrolyzer testing functions: stressor condition, performance curve (polarization curve, power curve), durability.
- PC software platform: 8 channels data storage and customizable script programming.
- Specialized fixtures: 5cm<sup>2</sup>、25cm<sup>2</sup>、50cm<sup>2</sup>.
- Multiple electrochemical testing: EIS/CV.



## Technical Parameters

| Model                           |                                                               | E500-L                                                                   |
|---------------------------------|---------------------------------------------------------------|--------------------------------------------------------------------------|
| Rated Power                     |                                                               | 500 W                                                                    |
| Hydrogen & Oxygen unit          | Hydrogen flow range                                           | 1.5 L/min                                                                |
|                                 | Hydrogen pressure range                                       | 0.2~2 barg                                                               |
|                                 | Oxygen flow range(optional)                                   | 0.75 L/min                                                               |
|                                 | Oxygen pressure range                                         | 0.2-2 barg                                                               |
| Water supplement control system | Water flow range                                              | 50-500 ml/min                                                            |
|                                 | Medium                                                        | Deionized water                                                          |
|                                 | Temperature control range                                     | RT+5°C ~ 95°C, control accuracy $\leq\pm 1^{\circ}\text{C}$              |
|                                 | Pre-heating rate                                              | 5°C/min                                                                  |
|                                 | Deionized function                                            | yes                                                                      |
|                                 | Automatic moisture separation                                 | yes                                                                      |
| Detection unit                  | Hydrogen Concentration Sensor (in oxygen pipeline)            | 0-5%VOL, 2%F.S.                                                          |
|                                 | Oxygen Concentration Sensor (in hydrogen pipeline) (optional) | 0-5%VOL, 2%F.S.                                                          |
| Cell voltage inspection         | Detection channels                                            | 5                                                                        |
|                                 | Measuring range                                               | (-5~5)VDC                                                                |
|                                 | Measurement accuracy                                          | $\pm 1\text{mV}$                                                         |
|                                 | Alarm system                                                  | Configurable alarm limits, voltage difference alarms & protection values |
| Power unit                      | Voltage range                                                 | 0~16V                                                                    |
|                                 | Voltage accuracy                                              | 0.05%RD+0.05%F.S.                                                        |
|                                 | Current range                                                 | 0~250A                                                                   |
|                                 | Current accuracy                                              | 0.1%RD+0.1%F.S.                                                          |
|                                 | Operating mode                                                | CV,CC                                                                    |
| General specifications          | Control system                                                | PLC                                                                      |
|                                 | Remote operation interface                                    | LAN                                                                      |
|                                 | Power supply                                                  | AC,220V/50HZ                                                             |
|                                 | Ambient temperature                                           | 0~45°C,0~90%RH                                                           |

## Optional Functions

- Electrochemical testing.
- Electrolyzer single cell specialized fixture.
- Online monitoring of oxygen flow rate.