



Brochure

# SENSITALL (SIA)

Version 0



#



## General description

---

Device Name:	SensitALL (SIA)
Part Number:	ZP1001415
Revision number:	v0

## Production description

---

SensitAll (SIA) is an advanced, single channel potentiostat design to integrate electrochemical measurement compatibilities for various applications. The SIA device combines the robust functionalities of traditional potentiostats with the power of cloud-based data analysis, making it a versatile tool for a wide range of applications.

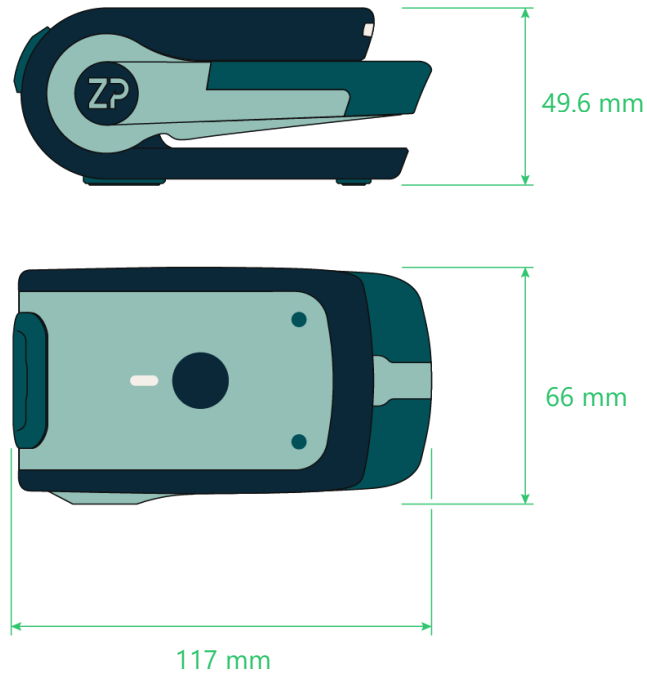
At its core, the SIA features an on-board Arm® Cortex™-M3 processor embedded microcontroller and an analog front end (AFE) to perform a variety of potentiostatic measurement techniques. It excels in controlling and measuring electrochemical sensors and biosensors using its current, voltage and impedance measurement capabilities. It provides precise and reliable electrochemical analysis across different techniques and applications.

One of the standout features of the SIA is its integration with the Djuli cloud-based platform. This platform allows for data analysis and visualization, enhancing the device's functionality beyond mere measurement. Data captured by the SIA is transmitted via Bluetooth® to a connected phone, which then sends the data via cellular or WiFi to the Djuli. In Djuli, the data is analyzed and processed to provide results back to the mobile phone App.

The SIA is highly customizable depending on the application type. It supports a wide range of electrochemical measurements, allowing detection of, for example, Capsaicin in chili-based products or Gingerol in ginger, garlic, and turmeric. Beyond food analysis, the SIA can also work with biosensors for detecting various biomarkers, such as testosterone. This flexibility makes the SIA a powerful tool for applications in both the food industry and biomedical research.

## SenseltAll instrument

---



## Materials

The mechanical components of the SenseltAll Instrument primarily consist of steel and nylon materials.

## Dimensions

Length	117 mm $\pm$ 0.10 mm
Width	66 mm $\pm$ 0.10 mm
Height	49.6 mm $\pm$ 0.10 mm
Weight	380 g $\pm$ 0.5 g



## Target applications

---

- Biosensors
- Gas detection
- Food quality
- Environmental sensing (air, water, soil)
- Life science and biosensing analysis
- Bioimpedance measurements
- General amperometry, potentiometric and impedance measurements

## Supported electrochemical techniques

---

- Open Circuit Potentiometry (OCP)
- Chronoamperometry (CA)
- Cyclic Voltammetry (CV)
- Linear Sweep Voltammetry (LSV)
- Electrochemical Impedance Spectroscopy (EIS)

## Device specifications

---

Rated Supply Voltage	5 V
Rated Supply Current	2 A
Power Supply Interface	USB Type C Cable
Bluetooth Range (Indoor)	5-10 m <sup>2</sup>

## Measurement specifications

---

Available measurement specification for SIA device through mobile application. The parameters can be potentially adjusted upon request, with ongoing updates to enhance app and device support.

### Open Circuit Potential

Save Rate	1 to 10 datapoints/s
Run Time	30s to 600 s

### Chronoamperometry

Configurable Current Ranges	1uA to 1mA
Applied DC voltage	-1V to 1V
Minimum Voltage Resolution	1mV
Save Rate	1 to 10 datapoints/s
Run Time	30s to 600s

### Cyclic Voltammetry / Linear Sweep Voltammetry

Configurable Current Ranges	5nA to 1mA
Minimum Current Resolution	1nA at 1uA as selected current range (or 0.004% of the configured current in GUI)
Start Voltage	-1V to 1V
Reversal Voltage	-1V to 1V
Minimum Voltage Resolution	1mV
Scan Rate	10 to 1000 mV/s



## Square Wave Voltammetry

Configurable Current Ranges	5nA to 1mA
Minimum Current Resolution	1nA at 1uA as selected current range (or 0.004% of the configured current in GUI)
Start Voltage	-1V to 1V
Reversal Voltage	-1V to 1V
Minimum Voltage Resolution	1mV
Frequency	1 to 200 Hz
Amplitude of Voltage Step	1 to 250 mV

## Electrochemical Impedance Spectroscopy

Applied DC Voltage	0mV to 100mV
Amplitude AC Voltage (RMS)	Typical 5mV
Frequency Start	100kHz
Frequency End	0.1Hz
Impedance Measurement Range	1 Ohm to 1MOhm

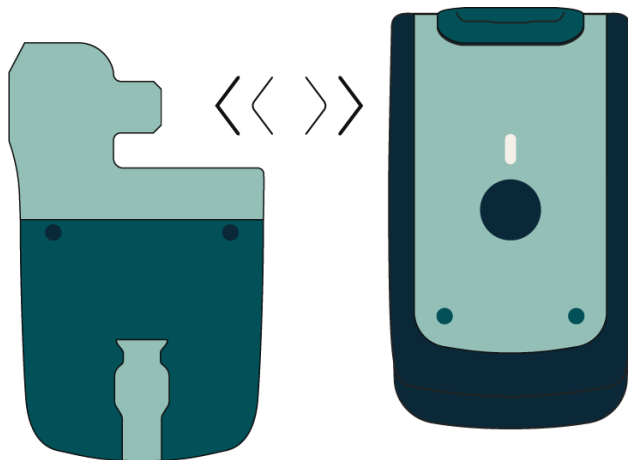
## Storage and Operating Conditions

---

Recommended storage temperature is 2-25°C, 20-50% RH

The device comprises two parts held together by magnets, allowing for easy separation for cleaning in the event of spillage. To disassemble, gently lower the middle part and then slide it out horizontally. Cleaning can be performed using tissues, cloths, or alcohol wipes. When reassembling, use the same horizontal motion to slide the parts back together, ensuring proper alignment.

# SENSITALL (SIA)



## Disclaimer

---

Please note that this product is intended solely for research and development applications. ZP assumes no responsibility for any in-vivo usage. It is designed to be utilized specifically in aqueous systems.

For further information or to discuss specific application requirements, please contact ZP directly.