

## HIGH QUALITY SURFACE ELECTROCHEMICAL SENSOR

**Type: AC1P.W\*.R\***

### Description

The sensor is formed on a corundum ceramic base. On to this surface the working, the reference and the auxiliary electrodes are applied. Working electrode has homogenous surface with roughness less than 1  $\mu\text{m}$ . The working and the auxiliary electrodes are made of variety of materials. At the end of the sensor there is a contacting field which is connected with the active part by the silver conducting paths which are covered by a dielectric protection layer. A bio-chemically active substance can be immobilised on the working electrode of the sensor to create a biosensor.

### Physical parameters

#### *Dimensions:*

Weight: 0.4 gms  
 Length: 25.40 mm  
 Width: 7.26 mm  
 Thickness: 0.63 mm

A = 4.00 mm

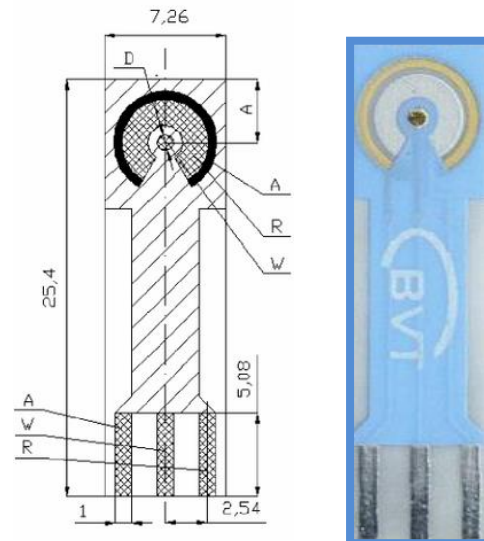
D<sub>w</sub> = 1.00 or 2.00 mm

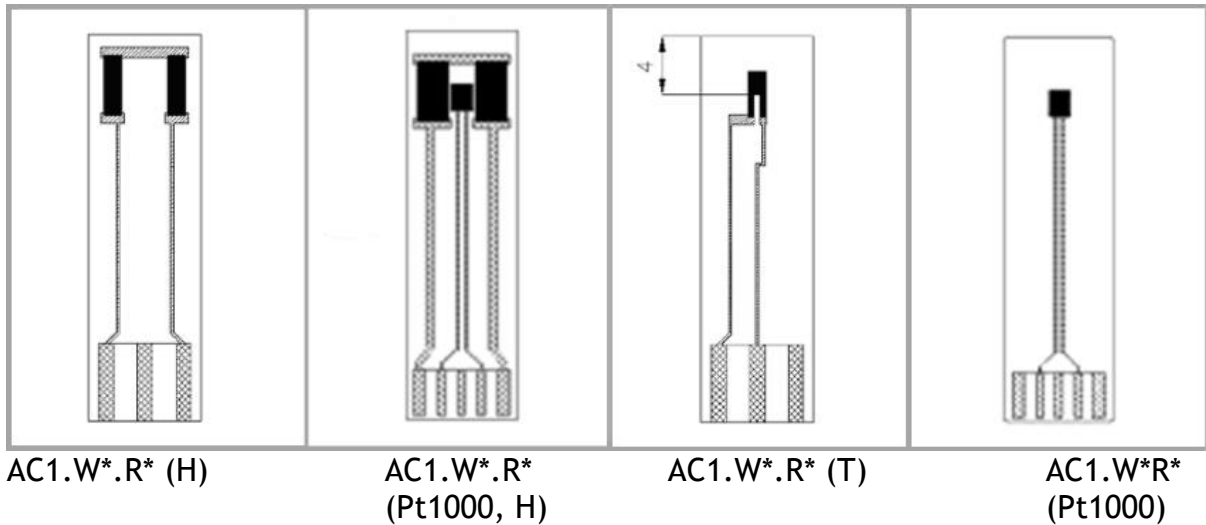
Electrode Materials are defined by:

**AC1P.W\*.R\***

The asterisk is replaced by the appropriate number or letter.

<b>AC - Amperometric sensor or electrode on corundum ceramic base</b>	
<b>AC1 - Sensor group reference number</b>	
<b>P - Polished working electrode</b>	
<b>W - Working electrode material</b>	<b>R - Reference electrode material</b>
<b>1 - Pure Gold</b>	<b>S - Silver</b>
	<b>2 - Silver covered by AgCl</b>





**Heating parameters:**

Maximum voltage is 35 V and temperature approximately 500°C, resistance: 80 Ohm.

**Thermistor:**

- 1) Resistance paste -resistance 160 Ohm, coefficient K= 6100 ppm/K
- 2) Pt1000

**Connector types for AC1P sensors range**

	KA1	KA1.S	KA1.C	KA4
AC1P.W*.R*	✓	✓	✓	✓
AC1P.W*.R*(H)				✓
AC1P.W*.R* (T)				✓

**Recommended Accessories**

- FC2, FC4, TC4, TC5, TC6, MT

**Sensor Usage**

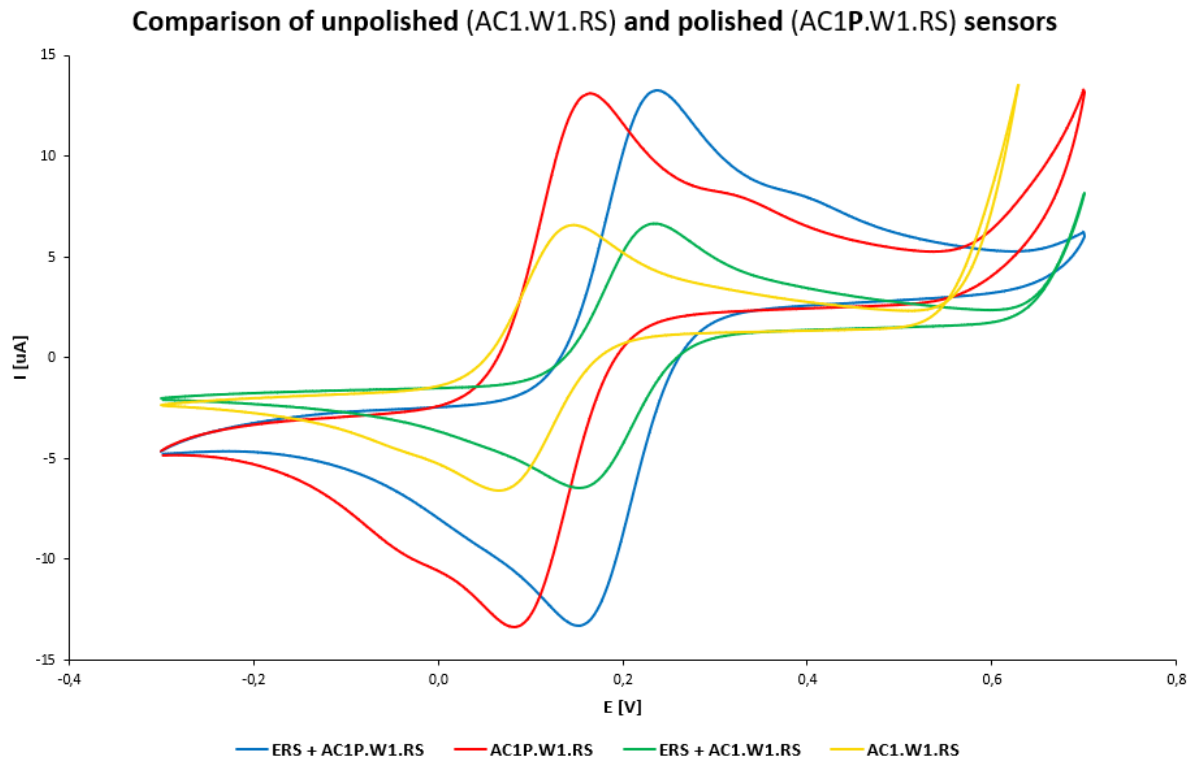
This specific range of AC1P sensors enable the measurement of:

- Basic electrochemical and bio-electrochemical techniques
- H<sub>2</sub>O<sub>2</sub> concentration, Glucose, Ferricyanide
- Trace analysis (e.g. stripping voltammetry)
- Toxicity caused by pesticides
- Enzyme activity
- Enzyme activity and Michaelis Menten constant
- Immobilization of antibodies
- Preparation of nanostructures

### Related patents

- PV 1994-864 (13.04.1994) utility design no. 6113/94

### Typical Sensor Response



### **Measurement specification:**

- Cyclic voltammetry, scan rate: 50 mV/s, potential range: -0,3 to +0,7V
  - Temperature: 20 °C
  - Working electrode: sensor AC\*.W1.R\*
1. Measurement with ERS (external reference system)
    - Reference electrode: RCEc.RS.R5 (external Ag/AgCl electrode (filled with 1M KCl))
    - Auxiliary electrode: sensor AC4.W1
  2. Measurement with sensor
    - The sensor's internal auxiliary and reference electrodes were used

### **Chemicals:**

- FeFe: 0.005M  $K_3[Fe(CN)_6]$  + 0.005M  $K_4[Fe(CN)_6]$  in 0.2M KOH

### Ordering information

- The order is specified by whole sensor description formula
- Minimum order quantity - 5 sensors
- All order quantities are to be in multiples of 5 e.g. 5, 10, 15, etc.
- Delivery time for standard AC1P sensors is 4 weeks from receipt of order
- Delivery time for non-standard AC1P sensors depends on final technical specification of order

### Examples of Order

- 100 pieces - AC1P.W1.RS
- 250 pieces - AC1P.W1.RS