

# CATALOGUE 2024, BVT Technologies, a.s.



**NEW  
PRODUCT!**

**USB Potentiostat  
Galvanoplot**

**Do not hesitate to contact us for more information!**

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**Visit our website [www.bvt.cz](http://www.bvt.cz)**

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- **ELECTROCHEMICAL SENSORS, BIOSENSORS AND ELECTRODES**
  - screen printed electrodes
  - classical electrodes
  - ISE
  - Mini rotation disc electrodes
  - Paste electrode
- **CUSTOM AND MODIFIED SPE**
- **STIRRERS**
- **POTENTIOSTATS**
- **MANUAL SCREEN PRINTER**
- **GLASS CELLS AND FLOW CELLS**
- **MINITHERMOSTAT**
- **PUMPS ...**

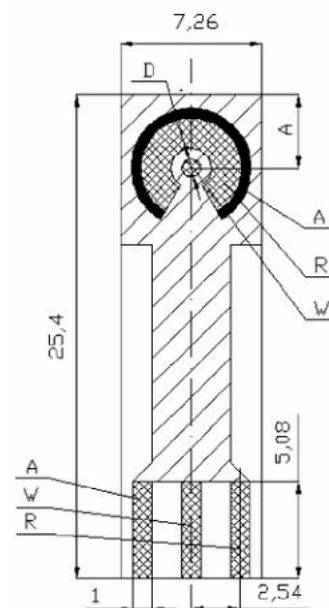
## STANDARD SPECIFICATION OF SPE SENSORS

**Electrochemical Screen-Printed Sensors (SPEs)** are important tools for routine analysis in various fields of electro-analytical chemistry. Knowledge of specific features enables the **optimum choice of a sensor** for the required application.

BVT created some **standard description of (SPEs) sensors**. It enables easy navigation on the sensors and the possibilities they offer.

The formula: **AC1\*.W\*.R\* (\*)**

is composed of a two letters code followed by a numeral, followed by specification of working and reference electrodes and possibly some accessories.



- ➔ The **first letter** characterizes the electrochemical method which is suitable for this sensor. (A... amperometry, C...conductometry,...).
- ➔ The **second letter** describes a substrate on which a sensor is printed. (C... ceramics (typically alumina ceramics), P...plastic or G...glass).  
*It is also possible to use some special material such as boron nitride ceramic or beryllium ceramics.*
- ➔ The **number following the second letter** characterize the topology of the sensor. (for example sensors AC1, AC2, CC1, CC2 ...). By this the basic materials of the sensors and their topology are defined.
- ➔ The **third letter W\*** specifies the working electrode. The number following the third letter specifies the working electrode material.
- ➔ (WS - standard material, W1 - pure gold, W2 - pure platinum, W3 - pure silver, W4 and W5 - printed or coated carbon (graphite)).
- ➔ Then follows the description of the **reference electrode R\*** and the number specifying its material. (RS - silver, R1 - a mixture of silver and silver chloride in a polymeric binder, R2 - silver covered by AgCl.
- ➔ (\*) - Additional Technical specification (H - Heating of the sensor, T - Temperature sensing element)

# SENSORS chemical RESISTANCE

## POLYMER VS CERAMIC DIELECTRIC PROTECTION LAYERS

Please note that each material has different mechanical and chemical resistance.

**Polymer layers** are cured at low temperatures and they have limited resistance to temperature and organic solvents. They are resistant against bases and acids.

**Ceramic layers** are fired in temperatures more than 850°C. They have excellent resistance against temperature and organic solvents. They have lower resistance against acids and bases.

## WORKING ELECTRODE MADE OF PURE METALS CAN HAVE LOWER ADHESION

### **WS - Au+Pt alloy:**

The active layer is from Au+Pt alloy. Main advantage – good adhesion and chemical resistance.

### **W1 - Au:**

The active layer is pure Au.

### **W2 - Pt:**

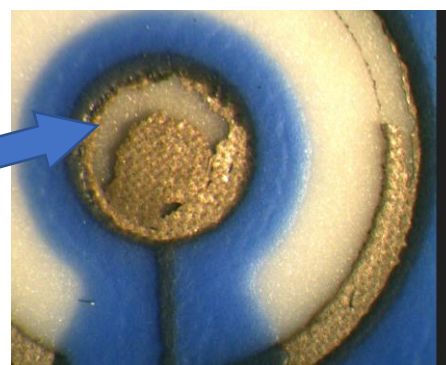
The active layer is pure Pt. This layer can be destroyed by **sonification, current over 10 mA and mechanical cleaning.**

### **W3 - Ag:**

The active layer is Ag

### **W4 and W5 - carbon (graphite):**

The active layer is carbon (graphite) (screen printed or microdispersed) in polymeric binder. Polymeric binder of active layer has **limited resistance to organic solvents and sonification.**



## PLEASE NOTE THAT EACH MATERIAL OF RE HAS DIFFERENT MECHANICAL AND CHEMICAL PROPERTIES

### **RS - Ag:**

97-98% Ag reference electrode with additives for better adhesion. Reference layer is partially covered by ceramic dielectric layer which is fired in temperatures more than 850°C. They have excellent resistance against temperature and organic solvents. They have lower resistance against acids and bases. The electrodes AC1.W\*.RS can be heated up to 600°C (except of W4.RS and W5.RS).

### **R1 - 65% Ag + 35% AgCl (powder mixture in polymeric binder):**

Ag/AgCl (65%:35%) reference electrode. Polymeric binder with limited resistance to organic solvents and sonification. Reference layer is covered by polymer dielectric layer which is cured at low temperatures. They have limited resistance to temperature and organic solvents. They are resistant against bases and acids. The electrodes AC1.W\*.R1 can be heated to 150°C to approximately 2 hours until significant change of parameters. The longer curing will cause reference electrode degradation. **If your measurement is sensitive to silver contamination, prefer R2 or RS.**

### **R2 - Ag covered by AgCl electrolytically:**

Ag reference electrode covered by AgCl electrolytically. The color of this layer can be from light to dark brown. This layer degrades under the influence of light. This layer degrades under the influence of light and in ammonia. The electrodes AC1.W\*.R2 can be heated up to 300°C (except of W4.R2 and W5.R2).

# DIAMETER of WE

The sensors are formed on a corundum ceramic base. On to this surface the working, the reference and the auxiliary electrodes are applied. The working and the auxiliary electrodes are made of a variety of materials (WS=Au+Pt alloy, W1=Au, W2=Pt, W3 = Ag, W4= carbon (graphite), W5= manually microdispensed carbon (graphite) and Au+Pt alloy AUX). The geometrical active surface of sensors lies in range +/- 10 %. Bigger active surface has better geometrical accuracy. The sensors quality is controlled statistically. It is possible to deliver sensors with lower parameters variability.

*Nonstandard materials (as Zn, Al, Cu, Mg), ... can be used for working electrode on special demand.*

## Sensor AC1.W\*.R\*, Diameter of WE is 1 mm

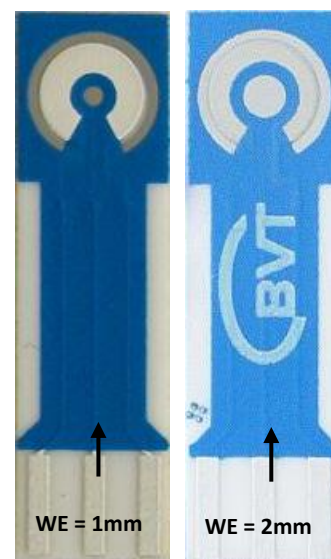
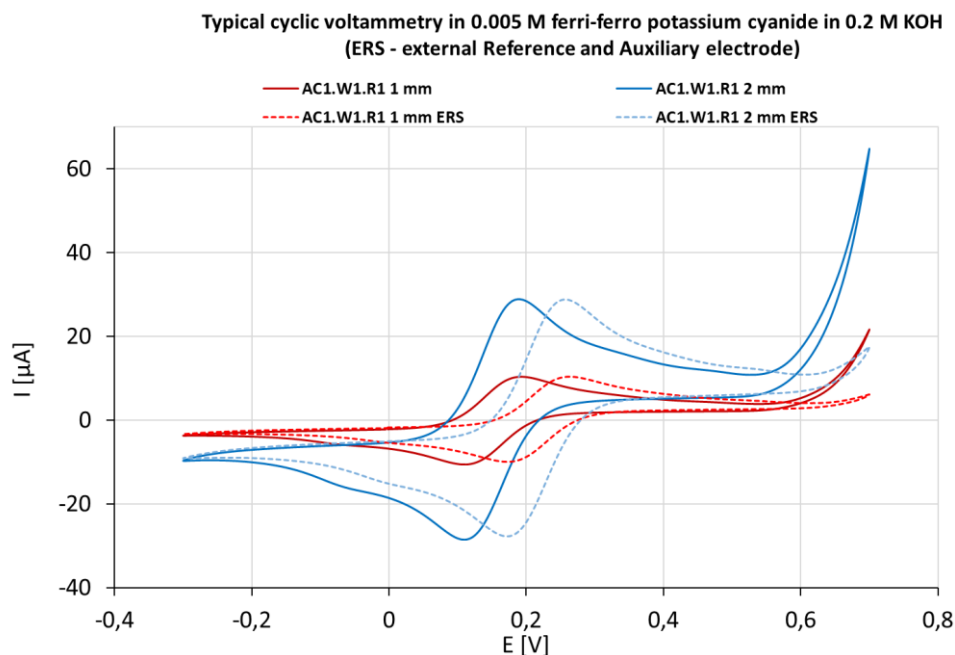
Basic amperometric low cost three-electrode sensor.

Dimensions: 25.4 x 7.26 x 0.63 mm

## Sensor AC1.W\*.R\*, Diameter of WE is 2 mm

Basic amperometric low cost three-electrode sensor with patented structure .

Dimensions: 25.4 x 7.26 x 0.63 mm



## Sensor AC1.W\*.R\*, Diameter of WE area is 3 mm (6,8 mm<sup>2</sup>)

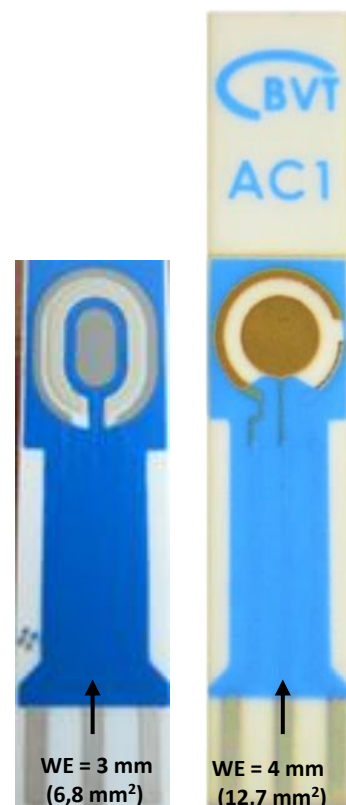
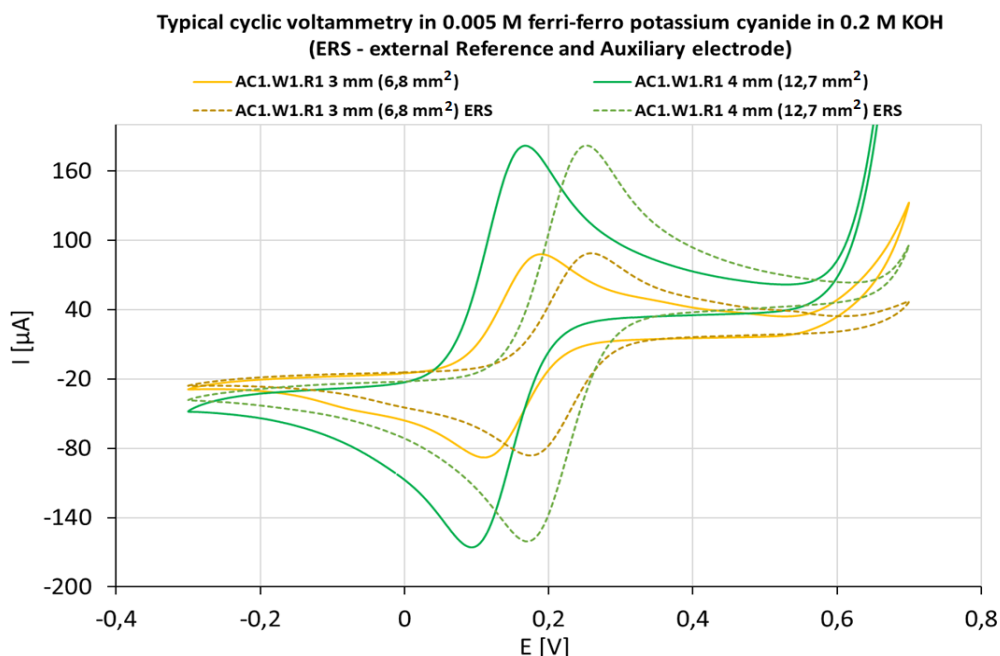
Basic amperometric low cost three-electrode sensor with patented structure .

Dimensions: 25.4 x 7.26 x 0.63 mm

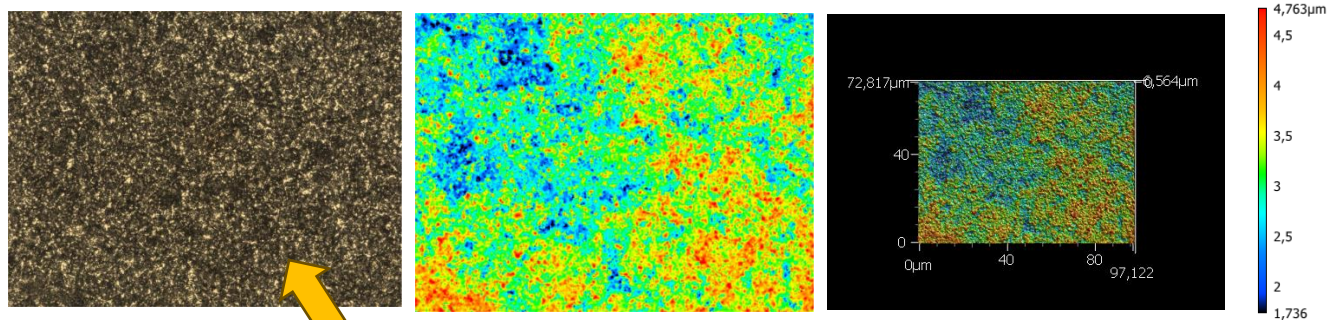
## Sensor AC1.W\*.R\*, Diameter of WE area is 4 mm (12,7 mm<sup>2</sup>)

Basic amperometric low cost three-electrode sensor with patented structure .

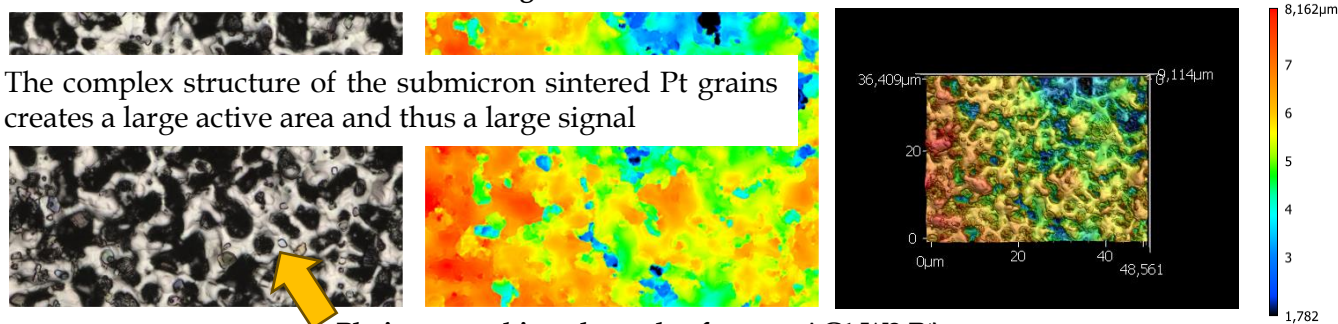
Dimensions: 25.4 x 7.26 x 0.63 mm



# TAKE A CLOSE LOOK AT THE WORKING ELECTRODES OF BVT SENSORS UNDER THE KEYENCE CONFOCAL MICROSCOPE!

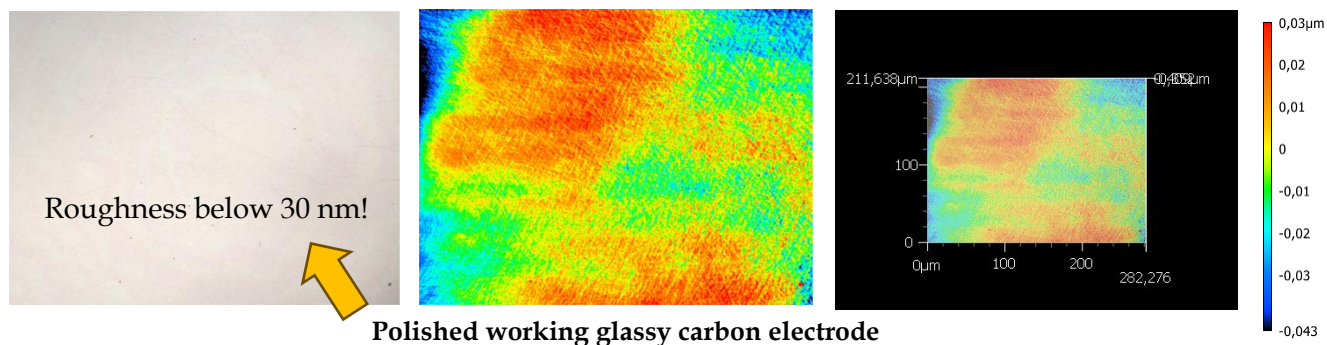


Gold working electrode of sensor AC1.W1.R\*



The complex structure of the submicron sintered Pt grains creates a large active area and thus a large signal

Platinum working electrode of sensor AC1.W2.R\*



Roughness below 30 nm!

Polished working glassy carbon electrode

## BVT OFFERS DISCOUNTED SPEs

Offer of Screen Printed Electrodes (SPEs) at a reduced Price from our AC1 line of Sensors.

The SPEs that we are offering, are fully functional, but with visual defects or inconsistencies.

- ideal for use by students to gain handling experience and knowledge on SPEs and their uses
- ideal for initial experiments in research

As these SPEs will be at a reduced price, it will allow the SPEs of the standard quality (Higher price) to be used once the students/researchers have gained handling experience from using the reduced price SPEs, and once again these SPEs are fully functional only with visual defects.

We hope that this offer will interest you and if so, please let us know, and you can place a order/request at: [info@bvt.cz](mailto:info@bvt.cz)

% discounts on the sensors are applied according to the visual defect/inconsistancies.

Feel free to explore the current offer of discounted sensors in the „Discounted SPEs“ product category.

AC1.W1.R1 (WE=2 mm) - batch no. 18620

Basic amperometric low cost three-electrode sensor with patented structure made by thick film technology.  
Dimensions: 25.4 x 7.26 x 0.63 mm  
WE material: Au

Defect	Smaller diameter of working electrode, visual defect
Discount	50 %
Final price	0,85 Eur/1 pc
Minimum order quantity	20 pcs/1 box
Actual amount	199 pcs

# SENSORS WITH POLISHED WORKING ELECTRODE AND WITH A WORKING ELECTRODE OF GUARANTEED PURITY

## AC1.P Electrochemical sensor

Amperometric three-electrode sensor with patented structure type AC1 with **polished working electrode made by thick film technology with homogenous surface with roughness less than 1 μm.**



Dimensions: 25.4 x 7.26 x 0.63 mm WE material: Au (diamater 1 or 2 mm)

### Typical Sensor Response

Measurement specification:

- Cyclic voltammetry, scan rate: 50 mV/s
- Temperature: 20 °C
- Working electrode: sensor AC1P.W1.R\* 1 mm

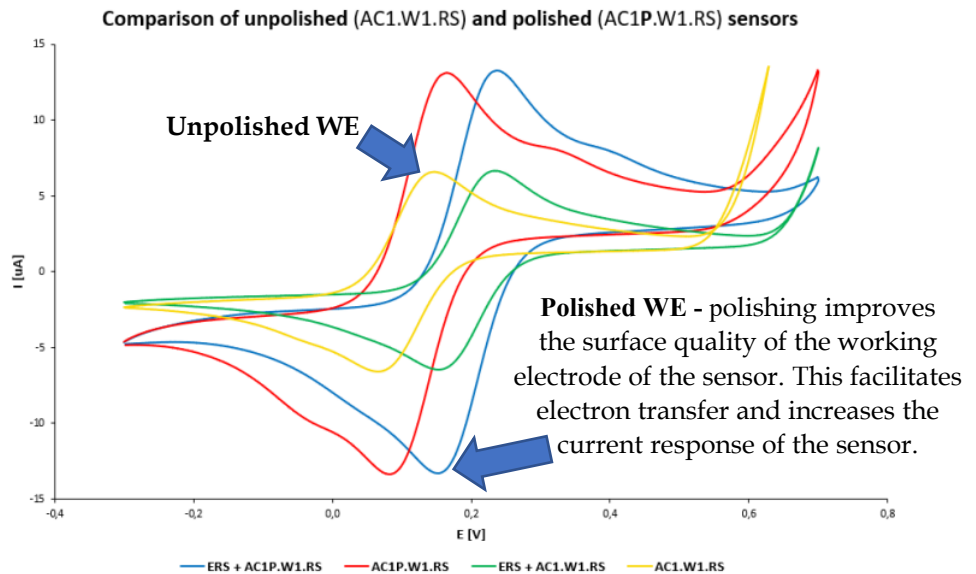
1) Measurement with ERS (external reference system - stable)

1. Reference electrode: RCEc.RS.R5 (external Ag/AgCl electrode (filled with 1M KCl))
2. Auxiliary electrode: AC4.W1

2) Measurement with sensor's internal auxiliary and reference electrodes

Chemicals:

- KCl: 1M KCl
- FeFe: 0.005M  $K_3[Fe(CN)_6]$  + 0.005M  $K_4[Fe(CN)_6]$  in 0.2M KOH

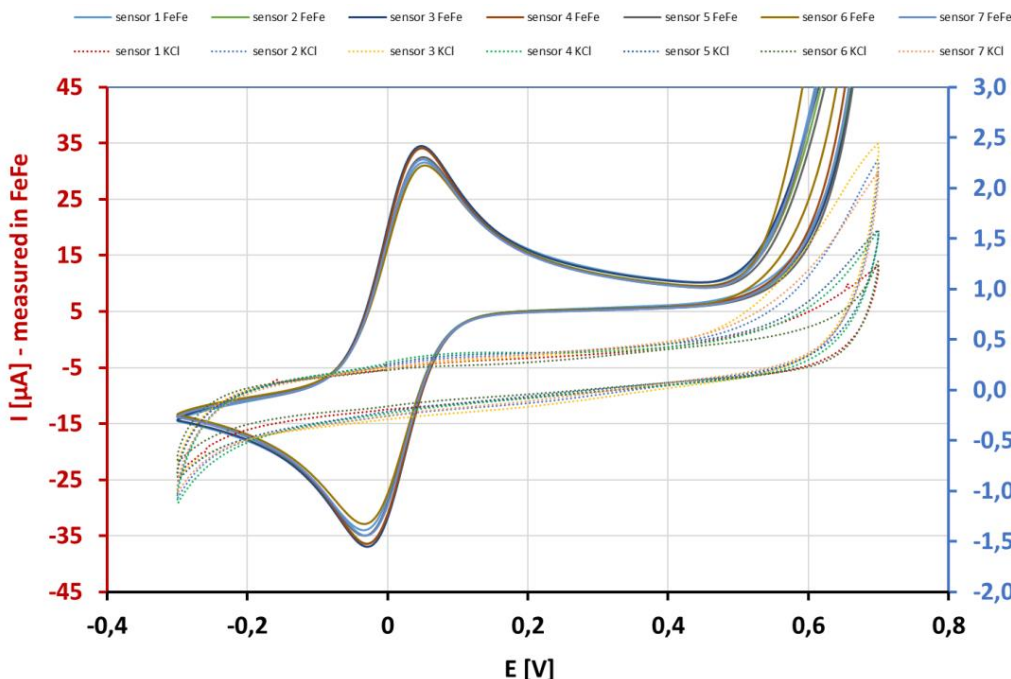
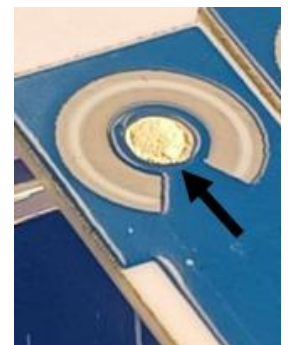


## AC1.GP. Electrochemical sensor with a working electrode of guaranteed purity

Basic amperometric three-electrode sensor with patented structure made by thick film technology.

Dimensions: 25.40 mm x 7.26 mm x 0.63 mm

The working electrode of the sensor with a diameter of 2 mm is made of a material of guaranteed purity of up to 99.99 % depending on the selected material – gold, platinum, silver, copper, iron, nickel, cobalt, chromium, tantalum, irridium, rhenium, magnesium, palladium, zirconium and others ! Standard layer thickness 0.0125 mm.



Measurement specification:

- Cyclic voltammetry, scan rate: 50 mV/s
- Temperature: 20 °C
- Working electrode: sensor AC1.GP(Platinum 99.95%) 2 mm

CV scans of 7 randomly selected sensors

Chemicals:

- KCl: 1M KCl
- FeFe: 0.005M  $K_3[Fe(CN)_6]$  + 0.005M  $K_4[Fe(CN)_6]$  in 0.2M KOH

# BVT BIOSENSORS

A bio-chemically active substance can be immobilised on the working electrode of the sensor to create a biosensor:

BVT offers:

## Glucose-oxidase (AC1.GOD) sensor

Amperometric Glucose Oxidase three-electrode sensor with patented structure made by thick film technology

Dimensions: 25.4 x 7.26 x 0.63 mm  
WE material: Pt

Sensor Usage: **Amperometric measurement of  $\beta$ -D-Glucose concentration in liquid samples.**

**Glucose Oxidase (GOD) from *Aspergillus Niger*** is immobilized on the active surface of a working electrode of amperometric substrate AC1.W2.RS. The diameter of the immobilized bioactive membrane is 2 mm and the mean applied activity is 1 unit/mm<sup>2</sup>.

## Acetylcholinesterase (AC1.AChE) sensor

Amperometric Acetylcholinesterase three-electrode sensor with patented structure made by thick film technology.

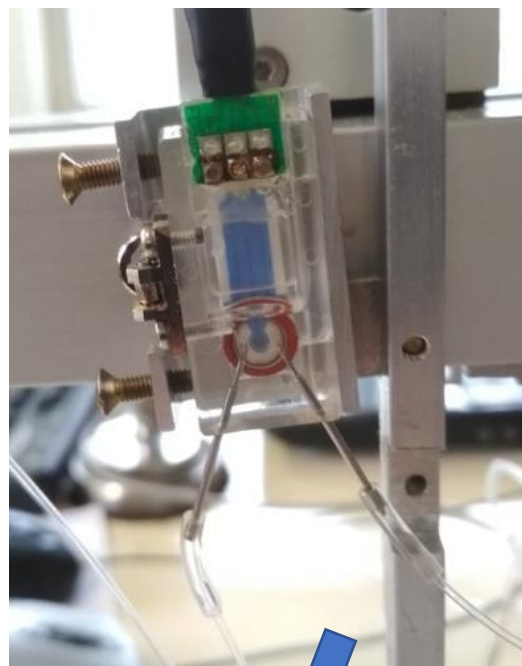
Dimensions: 25.4 x 7.26 x 0.63 mm  
WE material: Pt

Sensor Usage: **Measurement of AChE inhibitor concentration – organophosphorous and carbamate pesticides, toxic and neurotoxic gases.**

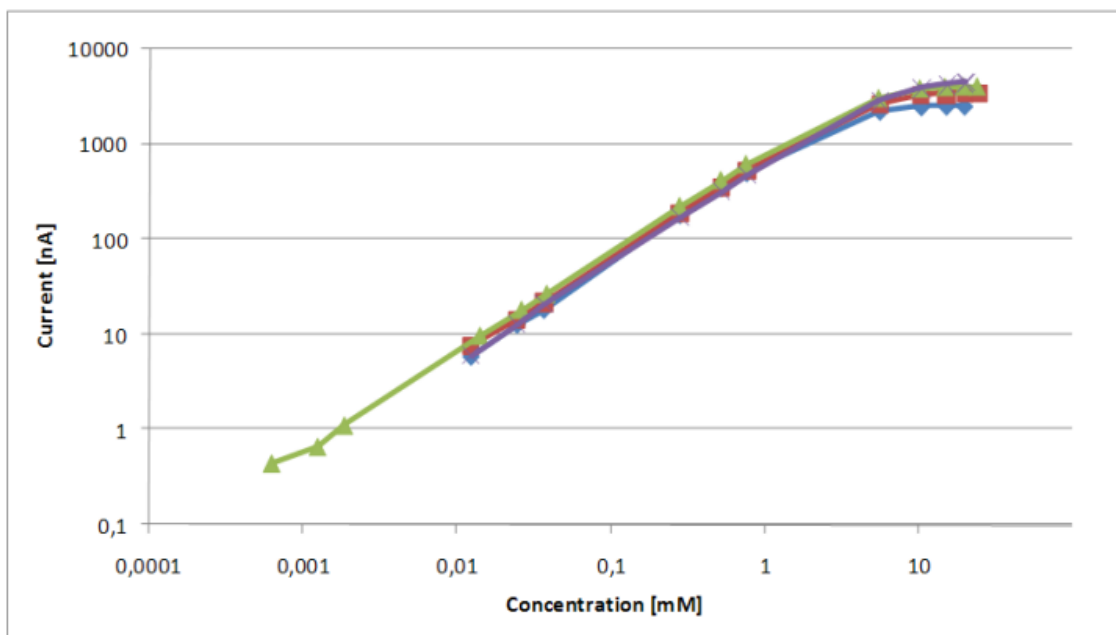
**Acetylcholinesterase from electric eel type VI-S** is immobilized on the active surface of a working electrode of electrochemical sensor AC1.W2.RS (i.e. Platinum working electrode, silver reference electrode). The diameter of the immobilized bioactive membrane is 2 mm and the mean applied activity is 1 unit/mm<sup>2</sup>.

Possible automation of the measurement after inserting the AC1.GOD sensor into the flow cell FC2.

Sample supply to the sensor by Diffusion injection analysis



**Example of electrochemical measurement of glucose using AC1.GOD biosensor with immobilised Glucose oxidase enzyme – calibration curve**



# NEW BVT PRODUCTS !

## USB Potentiostat Galvanoplot

USB Potentiostat Galvanoplot is a **super small, low-cost and affordable device suitable for dedicated volume applications, which is optimized for screen-printed sensor and biosensor applications**. It can be used in many other research areas and with other electrochemical sensors, for corrosion measurement, battery and super-capacitors or fuel cells.

It is **capable of performing all common Amperometric and Voltammetric electrochemistry protocols (CA, LSV, CV, DPV, NPV, SVW, GAL)** and can be used with three electrode (WE/RE/CE) and two electrode (WE/RE-CE) setups. Plug the device directly into an Android mobile device through OTG port for a true on-site analysis experience. It is **possible to choose from two types of interfaces allowing direct insertion of the BVT SPE sensors or the use of 3 classical electrodes with 2 mm banana plugs (WE, RE, CE)**.

### Specifications

- Dimensions: 39x17x8 mm
- Weight: 5 g without sensor interface
- Voltage scan range:  $\pm 3\text{V}$  @1mV resolution
- Max current: 2000 nA
- Current resolution: 300pA@1KSPS/ 100pA@100SPS/ 30pA/10 SPS resolution
- Noise around: 50nA@1KSPS/ 7nA@100SPS/ 400pA/10 SPS
- Protocols: CA, LSV, CV, DPV, NPV, SVW, GAL
- Cell type: WE/RE/CE and WE/RE-CE
- Connectivity: USB-C (Plug the device directly into an Android mobile device through OTG port for a true on-site analysis experience)
- Operating system compatibility: Windows 8, 10+
- Advanced analysis - filtering and auto peaks

### Device Usage

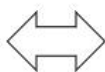
Electrochemical measurements  
 Measurements with biosensors and electrochemical sensors  
 Measurement of biochemical activity of a sample  
 Corrosion measurement



### Typical arrangement with MAC microreactor and USB Potentiostat Galvanoplot



Smartphone, tablet or PC



**Galvanoplot.C1**  
(USB Potentiostat Galvanoplot)

**MAC Microreactor**  
(used for measurement of small volume)



sample pipetting  
(20  $\mu\text{l}$ )



# NEW BVT PRODUCTS !

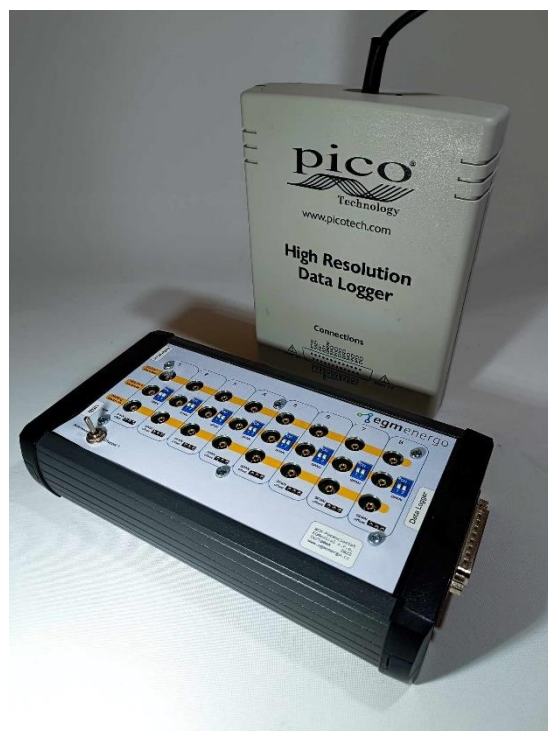
## 8/16-Channel Potentiostat for High Resolution Data Logger

The device consists of a combination of an **multi-channel potentiostat/converter** (BVT Technologies) and an external **USB Pico ADC high resolution data logger** (Pico Technology).

The **data logger** can be supplied in **two versions**:

**ADC-20** (20 bits, **8 channels**) or **ADC-24** (24 bits, **16 channels**). For detailed specifications, see the attachment at the end of the document. The device allows measurements from up to 8 or from up to 16 independent channels. The basic output signal is a voltage in the range of -2.5 to 2.5 V. All channels are programmable (the output can be concentration, temperature, pressure...).

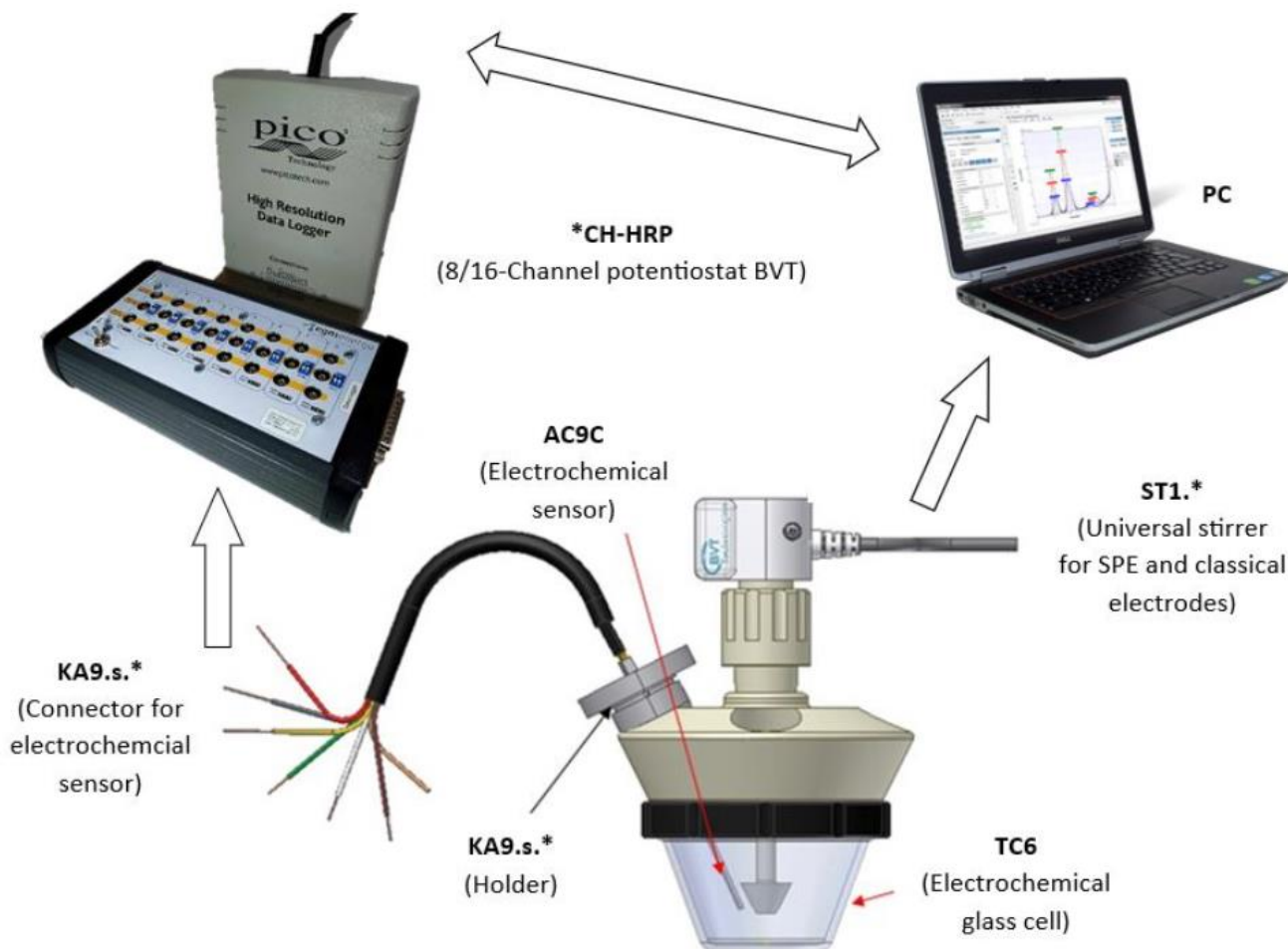
After connecting the device to a PC with Pico Technology's **Picolog 6 measurement program** installed, the voltage [V] can be processed using **math channels** and directly recorded in real time as **temperature, current, resistance, frequency, % and pressure**, see measurement example at the end of the document. For temperature measurement, the device is compatible with resistance thermometers (Ni 1000, Ni 5000, Pt 1000). Power is provided via USB-B, the maximum electrical consumption of the device is 500 mA.



### Device Usage

- Temperature measurement with different temperature sensor (resistance thermometers Ni 1000, ni 5000, Pt 1000)
- Voltage measurement
- Conductivity and resistance measurement
- Amperometry measurement

### Typical arrangement for measurement with 8/16-Channel Potentiostat for High Resolution Data Logger and multiarray electrode AC9



# NEW BVT PRODUCTS !

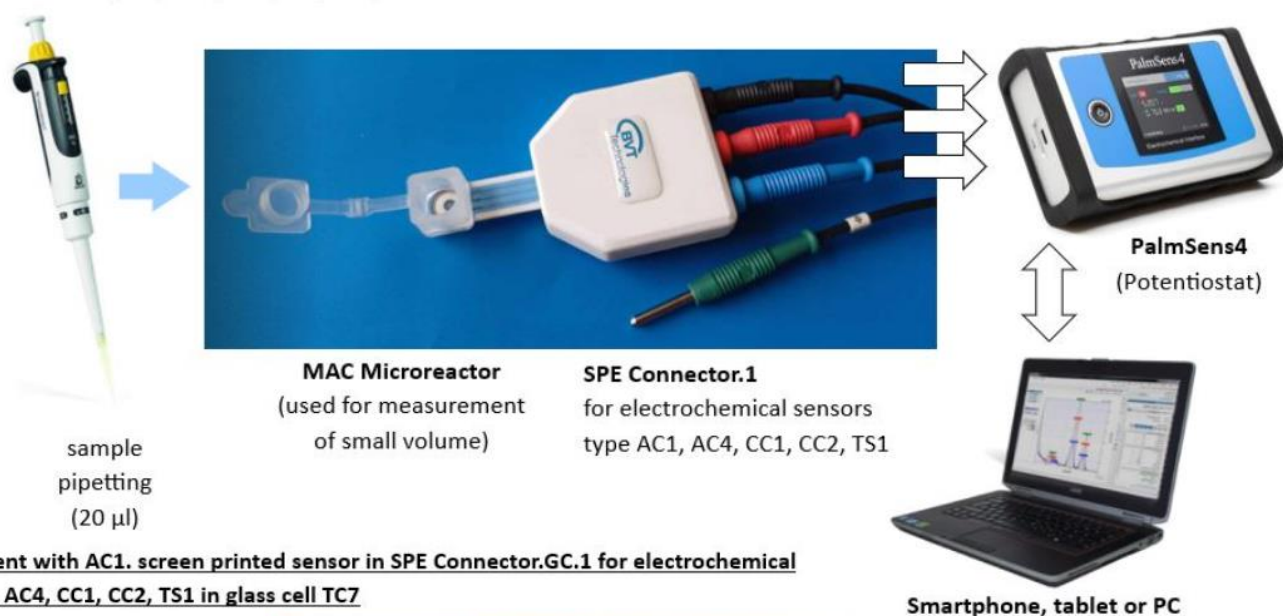
## SPE Connector.1 for electrochemical sensors type AC1, AC4, CC1, CC2, TS1

The connector enables the use of the biosensor or electrochemical sensor based on the substrates AC1, AC4, CC1, CC2 and TS1 in classical electrochemical arrangement. The connector enables measurement with screen printed electrodes with width 7.26 mm and standard contact pads pitch (2.54 mm). It is compatible with other SPE's that use the same distance between the contact pads (2.54 mm). Termination: 2 mm Banana plugs

## SPE Connector.GC.1 for electrochemical sensors type AC1, AC4, CC1, CC2, TS1 in glass cell

The connector enables the use of the biosensor or electrochemical sensor based on the substrates AC1, AC4, CC1, CC2 and TS1 in glass cell TC4, TC5, TC6 or TC7. The connector enables measurement with screen printed electrodes with width 7.26 mm and standard contact pads pitch (2.54 mm). It is compatible with other SPE's that use the same distance between the contact pads (2.54 mm). The cone at the connector sensor side is NJ 8/10 which enables to use the connector with any standard chemical vessels. Termination: 2 mm Banana plugs

### Typical arrangement with MAC microreactor and SPE Connector.1 for electrochemical sensors type AC1, AC4, CC1, CC2, TS1.



### Typical arrangement with AC1. screen printed sensor in SPE Connector.GC.1 for electrochemical sensors type AC1, AC4, CC1, CC2, TS1 in glass cell TC7



# NEW BVT PRODUCTS !

## STK-C Customer Starting kit

The customer starter kit is a **set of twenty different electrochemical sensors** to find the best one that suits your application. The starter set **contains at least 5 pcs of sensors type AC1.W\*.R\*** from the given type of sensors with a working electrode diameter (Dw) 1 or 2 mm stored in a box with numbered positions and silica gel.

**The exact choice of the given types of sensors in the kit is at the request of the customer !**

### An example of a possible arrangement of sensors in the kit

1)

Position	Type of sensors	Dw	
1	5	AC1.W1.RS	1 mm
6	10	AC1.W1.R1	1 mm
11	15	AC1.W1.RS	2 mm
16	20	AC1.W1.R1	2 mm

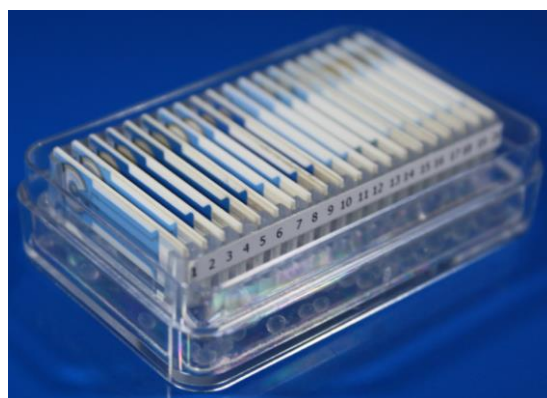
2)

Position	Type of sensors	Dw	
1	10	AC1.W4.RS	1 mm
11	20	AC1.W5.RS	1 mm

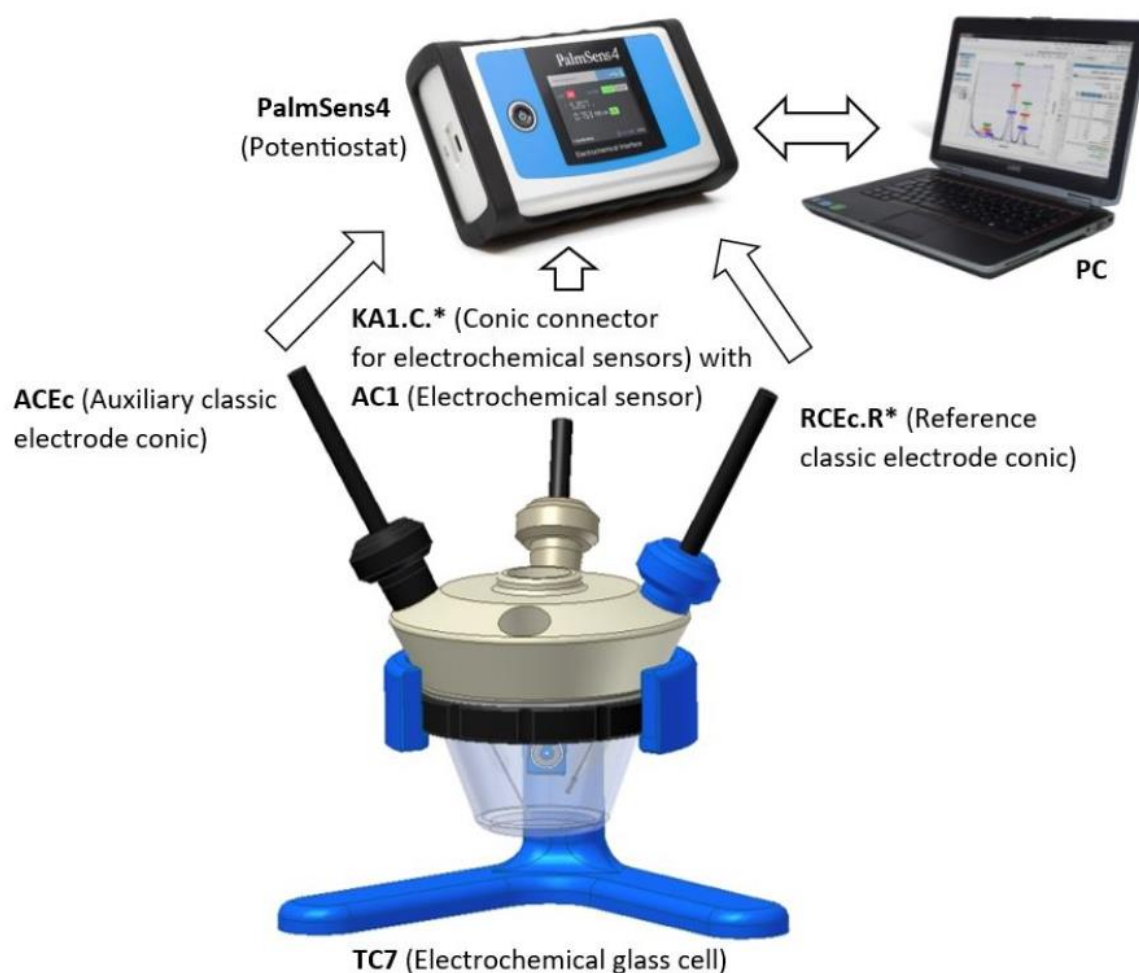
3)

Position	Type of sensors	Dw	
1	15	AC1.W1.RS	1 mm
16	20	AC1.WS.R1	2 mm

...



### Typical arrangement with screen printed sensor and classical electrodes



# Finalised BVT project: New generation of ISE electrodes CZ.01.1.02/0.0/0.0/21\_374/0027289

As part of the project (which was solved together with BVT partner Monokrystaly), new ISEs suitable for continuous measurement with a diameter of 6 mm were developed for the determination of Cl, Na, K, Ca ions together with prototypes of the relevant flow chambers, the technical solution of which is protected by utility models:

## FC.1ISE.1REF Flow cell for single ion selective electrode with integrated stirring

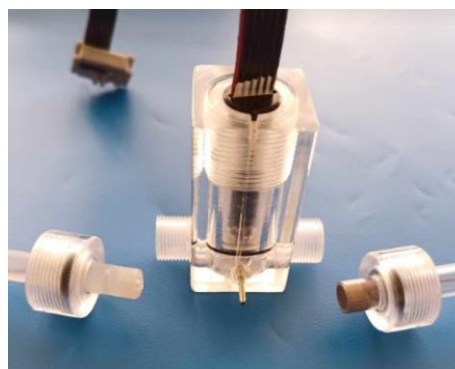
The flow cell with integrated stirring and reduced hydrodynamic noise is **designed for the determination of single analyte using one miniature ion-selective electrode (ISE) and one miniature reference electrode with a diameter of 6 mm and length of 60 mm**. Rotation speed of integrated stirrer: 10-4000 rpm.

**Miniature ion-selective electrodes and reference electrode** were designed for integration into the flow cell for determination of Cl<sup>-</sup>, K<sup>+</sup>, Ca<sup>2+</sup> and Na<sup>+</sup> ions.

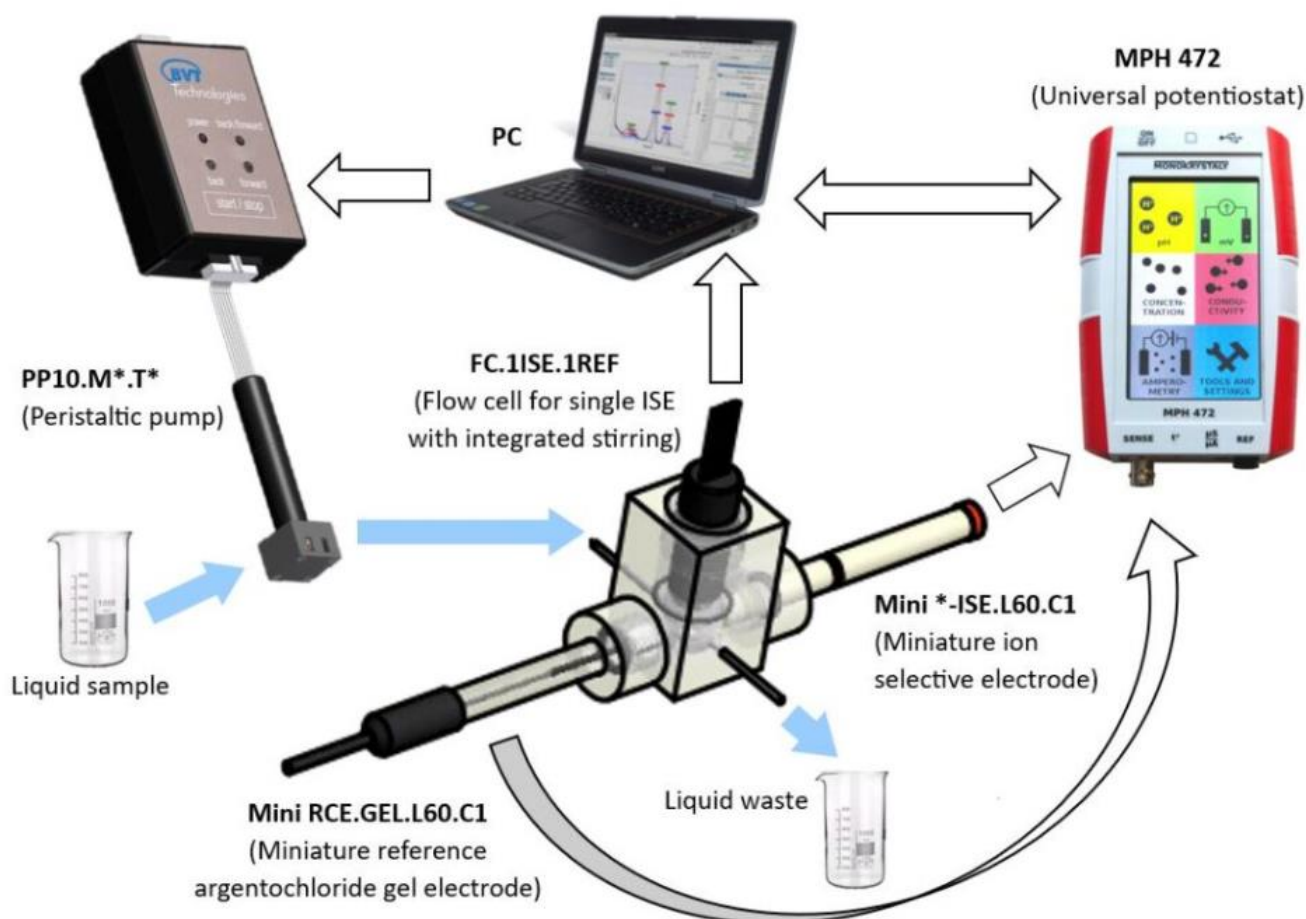
### The flow cell with one selected ISE can be used for:

Automatic or semi-automatic measurement of concentration of Cl<sup>-</sup>, K<sup>+</sup>, Ca<sup>2+</sup> and Na<sup>+</sup> ions in various solutions (following prior calibration). For continuous measurement of changes in concentration of Cl<sup>-</sup>, K<sup>+</sup>, Ca<sup>2+</sup> and Na<sup>+</sup> ions.

In flow mode, the system can operate automatically. The speed of the integrated stirrer can also be controlled by applying the corresponding voltage to the motor, connected to a stabilized source.



### Typical arrangement with Miniature ion selective electrode in flow trough measurement





# DISTRIBUTION PALMSENS



## INTRODUCTION OF NEW PRODUCTS !

### EmStat4X

The EmStat4X delivers high performance in a small footprint. The EmStat4X is a **small battery and USB-powered Potentiostat, Galvanostat, and optional Frequency Response Analyser (FRA) for Electrochemical Impedance Spectroscopy (EIS).**

The EmStat4X Low Range (LR) version is great for applications that require **measuring low currents down to picoamps, like (bio)sensor research.** The High Range (HR) version is very suitable for applications that need a maximum current of up to 200 mA. The EmStat4X is controlled with PSTrace for Windows, or you can write your own MethodSCRIPT and control it from any platform or operating system.



#### Two versions

The EmStat4X comes in two different versions:

- **Low Range:** for lower currents and potentials ( $\pm 30$  mA /  $\pm 3$  V applied /  $\pm 5$  V compliance)
- **High Range:** for higher currents and potentials ( $\pm 200$  mA /  $\pm 6$  V applied /  $\pm 8$  V compliance)

Both versions can be configured with optional EIS/FRA up to 200 kHz.

See specifications for a detailed comparison between the LR and HR.

#### Always a backup

The EmStat4X is equipped with 500 MB internal storage memory for storing your measurements as a backup. All internally stored measurements can be browsed and transferred back to the PC easily using the PSTrace software for Windows. Your data is always with your instrument wherever you take it.

### MUX8-R2 Multiplexer

#### Multiplexer for 8 up to 128 cells

- Automatically switch between electrochemical cells
- Easy stacking with magnetic feet and top
- 4 different electrode or sensor configurations
- Daisy chain multiplexers, up to 128 channels!

The PalmSens series and the EmStat4X can be used to work with multiple working electrodes or a sensor array by means of a multiplexer.

The **multiplexer switches between the working electrodes in the range of milliseconds.**

- each MUX8-R2 multiplexer enables to work with up to eight 2- or 3-electrode systems.
- daisy chaining multiple MUX8-R2 boards (expansion up to 128 channels)
- all hardware settings are controlled by the software making it unnecessary to flick a physical switch
- LEDs to show which channel is selected
- allows to connect auxiliary input (like temperature sensor)



#### PalmSens BV

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# DISTRIBUTION BASI



## INTRODUCTION OF NEW PRODUCTS !

### Epsilon EClipse™ Potentiostat/Galvanostat/Bipotentiostat

The Epsilon EClipse is the latest electrochemical analyzer manufactured by BASi.

It is a potentiostat/galvanostat with a second working electrode for bipotentiostat measurements.

Software with the most popular electrochemistry techniques is included with the instrument.



### Corrosion Cell Set



This cell set will provide you a standard corrosion cell with a sample holder for metal coupons exposing 1 cm diameter round area to the solution as well as the equipment for the Stern-Makrides arrangement. This cell is suitable for many common corrosion-related measurements. The working electrode can be used together with a sample holder for metal coupons and a stainless steel electrode, or a custom electrode. Two counter electrodes can be connected at the same time. As a reference electrode, a saturated calomel electrode (included in the cell set) or a silver chloride reference electrode can be used.

Please contact us for more information about these electrodes.

The maximum coupon diameter is up to 15 mm. The thickness of the coupon can be up to 5 mm.

### Fully Equipped H-Cell Kit (50 ml Volume)

The IP-HC-50 is a fully equipped, horizontally mounted and a dual compartment electrochemical H-Cell set-up for a wide variety of studies that require a separate compartment for counter and / or reference electrodes. The construction is gas-tight having two separate chambers, each equipped with gas inlet and outlet. This allows bubbling the solution and evacuating gases. Chambers can be separated with an ion-exchange membrane (DuPont's Nafion® membrane - not included in the price), so the electrochemical products appearing at working and counter electrode do not affect the opposite electrode. Set-up is compatible with a power source meter or a potentiostat / Galvanostat.

Available Volumes: 25 mL, 100 mL, 250 mL, 500 mL, and 1000 mL



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We believe that high quality technical and service support is important to our customers. We pride ourselves on being able to respond quickly and efficiently and will direct your enquiry to the person(s) in our company most able to deal with any service or applications questions you might have.

BVT offers customers full technical support in field of electrochemical sensors and biosensors. BVT customers are enabled to use all advantages of electrochemical sensors and biosensors. The company mission is realized through its structure, which copies the typical customer technical problems.

If you are interested in any of these services or any other queries please use the 'Contact and Location' Page to send us a message.

## Customer Consultancy Services

BVT offers consultancy services to all our customers. This is available to all our customers, however depending on the complexity of the questions/requests, some charges may be requested, from 50Eur per hour.

## Project Support and Consultancy

BVT has a lot of experience from participating in International Projects and developments of technology such as Sensors/Electrodes and Lab Equipment, which allows us the ability to provide support and consultancy services for multiple types of projects and also as a 3rd party expert for help or consultancy on projects. With our 30+ Years of experience in a range of areas, we can provide expert and reliable advice.

We have experts in the field of Chemistry, Biochemistry, Thick Film Technology and Engineering and Design, who are on hand with their knowledge to assist partners and customers alike. Some examples of Projects that we have worked on include HydroSense (No. 7D19007), InFuLOC (No. 230749) and BioMedNano (No. 017350), these projects show a range of what BVT has to offer in other projects and as consultants.

## Offer of long-term automated measurements on BVT apparatus

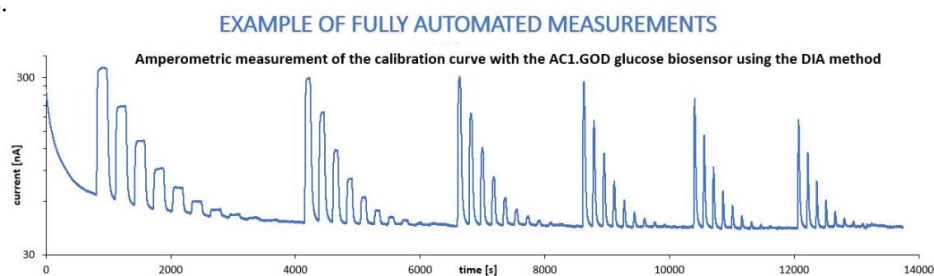
SPE sensors work best in flow mode. For these purposes, the BVT laboratory is equipped with potentiostats, high-pressure pumps, peristaltic pumps, linear pumps, liquid switches and flow cells.

Measurement by FIA and DIA (Flow injection and Diffusion injection analysis) methods in connection with a microdialysis catheter.

We have a unique AUTOSAMPLER device (x-y-z robot) with a movable arm, allowing the movement of the measuring probe between up to 50 samples.

### Example of use:

- semi-continuous measurement by classic immersion of electrodes in samples
- continuous measurement in flow mode using the DIA and FIA methods



## Training Services

Training Services are also provided by BVT on equipment such as BVT Developed Screen Printers, Sensors, and more. An example of the training can be seen in 2015, when a team from Croatia came and were trained in the use of the screen printers.

- ✓ Glucose sensors, their use and measurement
- ✓ AChE sensors, their use and measurement
- ✓ Activity of enzymes measurement
- ✓ Inhibition of enzymes measurement
- ✓ Detection of organophosphorous and carbamate pesticides
- ✓ Biosensors based on interaction between algae and analyte
- ✓ Detection of herbicides
- ✓ Measurement of bioavailable toxic compounds
- ✓ Measurement with microfluidic chips
- ✓ The application of microdialysis with biosensors
- ✓ The application of biosensor on demand of customer

(If necessary the cost of preparation and special sensors or chemicals is added to standard price.)



# BVT will participate in the 43rd Modern Electrochemical Methods conference!

The 43rd annual Modern Electrochemical Methods (MEM) international conference will take place on the traditional May date of May 20-24, 2024 at the Bellevue Hotel in Jetřichovice near Děčín (Czech republic).

The event is organized with the professional cooperation of the Institute of Physical Chemistry J. Heyrovského of the Academy of Sciences of the Czech Republic, Prague, Institute of Biophysics of the Academy of Sciences of the Czech Republic, Academy of Sciences of the Czech Republic, Brno, Department of Analytical Chemistry PřF UK, Prague and the Czech Chemical Society.

The conference is supported by Metrohm Česká republika s.r.o. The intention of MEM is to present new and existing electrochemical methods to the professional public using the most modern technology and materials. Do not hesitate to apply for communications from your workplaces.

As it is every year the conference is open to various forms of active participation - with a clear message, original works and presentation of companies

Despite the high professional level, the conference maintains an informal atmosphere and sufficient space for discussions.

**We look forward to you !**

