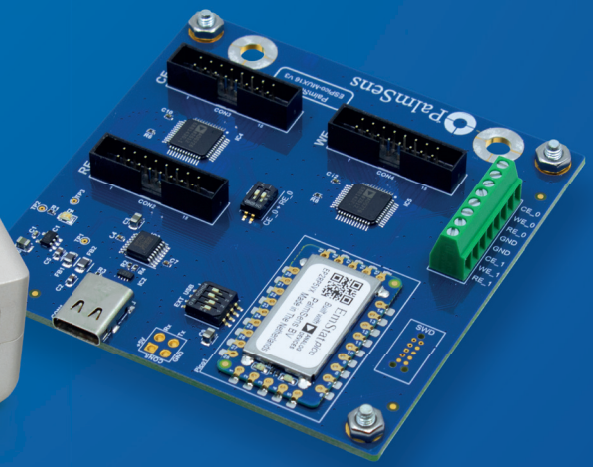
Potentiostats for Makers and Manufacturers

Enabling Electrochemistry Inside *and* Outside the Lab



PalmSens

PalmSens
ISO 9001:2015 certified

Contents

All our instruments come standard with a 3-YEAR WARRANTY

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Enabling Electrochemistry Inside *and* Outside the Lab

At PalmSens, we help innovators embed electrochemical measurement capabilities into their devices and systems. As an Original Equipment Manufacturer (OEM), you can integrate our technology to accelerate development, enhance functionality, and bring electrochemical sensing to new applications and markets.

Our OEM product range includes compact, versatile modules like the EmStat Pico—the world's smallest commercially available potentiostat with EIS capabilities. Co-developed with Analog Devices Inc., it powers several PalmSens instruments including the Sensit Smart, and is available as a standalone module or with our Development Kits, for rapid prototyping and embedded integration.

For market-ready solutions, we offer advanced options like the EmStat4T—a fully programmable, battery-powered handheld device with touchscreen interface and built-in QR code scanner. It's ideal for field-testing and direct deployment in mobile applications using your custom apps.

PalmSens uniquely provides an integrated software ecosystem to support development and deployment. From intuitive control and analysis tools (PSTrace, MultiTrace, PStouch) to MethodSCRIPT for direct device control and SDKs for C#, Python, MATLAB, and LabVIEW, the PalmSens applications suite amplifies the capability and flexibility of our OEM systems—enabling seamless implementation of your product ideas.

Whether you are building your first prototype or embedding electrochemical capabilities into existing systems, PalmSens is your proven partner throughout your innovation and commercialization journey.

Why choose PalmSens?

- More than 25 years of experience delivering embedded potentiostat solutions for research, diagnostics, and commercial applications.
- Reduced development time and risk: hardware and application evaluation before integration.
- Developer-ready software ecosystem: intuitive tools, powerful scripting, and flexible SDKs for full control and integration.
- Over 200 OEM customers worldwide, from startups to global leaders, trust PalmSens as a technology partner to power their electrochemical innovations from concept to production.

ANALOG DEVICES
AHEAD OF WHAT'S POSSIBLE™
ALLIANCES

EMSTAT PICO™ MODULE

Small Size with Full Potential

Co-developed with our partner Analog Devices Inc., the EmStat Pico is the world's smallest commercially available potentiostat with EIS capabilities.

This compact module can be seamlessly integrated onto your PCB to perform electrochemical measurements using your own sensors without need of advanced programming or potentiostat expertise, making it ideal for embedded applications.

The dual-channel module can be operated in either sequential or bipotentiostat modes and supports most common electrochemical techniques, which combined with its ultra-low power consumption, makes it highly suited for long-term remote monitoring and point-of-care solutions.

- four versions supporting different electrochemical techniques
- -1.7 V to +2 V potential range
- -2.0 V to +2.3 V compliance
- ±3 mA maximum current
- 100 nA to 5 mA (10 or 12 current ranges depending on mode)
- current resolution of 0.006% of current range (5.5 pA at 100 nA range)
- current accuracy < 0.5% for ranges >100 nA (< 2% for 100 nA range)
- 56 µV measured potential resolution (for OCP)
- 0.016 Hz to 200 kHz FRA/EIS (electrometer bandwidth 250 kHz)
- 1 mV to 0.25 V rms (0.708 V p-p) ac-amplitude range
- electrometer input impedance > 1 TΩ // 10 pF
- 400k samples/s max. data acquisition rate
- supported techniques: LSV, CV, DPV, SWV, NPV, CA, CC, MA, PAD, OCP and EIS

› palmsens.com/pico

Small Footprint Dual-Channel (Bi)Potentiostat Module and Impedance Analyzer

Power
3.3 V DC supplied by host system with ultra-low power and sleep mode support

Connection
8 GPIO lines, SPI port with SD card support and dedicated UART, SPI, and I²C channels

Dimensions
18 x 30 x 2.6 mm

Internal Storage
Optional locally with SD card interface

Electrodes
2 x WE, 2 x CE, 2 x RE in duel-cell or bipotentiostat configuration

Configuration options

EIS capabilities
no EIS | 200 kHz

Software

Platform
Windows

Development tools
PalmSens SDK and MethodSCRIPT

More about software
See pages 19-22

Supported techniques › page 10
Full specifications › pages 12-13

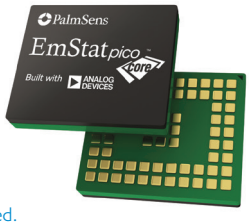
The Core Inside Every Module

Offered for high-volume applications, the EmStat Pico Core is the compact chip inside every EmStat Pico Module and offers the same proven electrochemical sensing capabilities, but at just 6 × 5 mm it is more optimised for mass production where affordability and form factor are priorities.

Based on the ultra-low power ADuCM355 mixed-signal microcontroller from Analog Devices Inc. and using the MethodSCRIPT™ protocol, the Core allows easy implementation of complex electrochemical workflows via readable scripts using PSTrace for Windows or adapted from extensive open-source examples.

For prototyping, the Core can be evaluated using the EmStat Pico Module and Development Kit, with identical measurement results guaranteed.

To accelerate development and implementation, PalmSens provides a reference design, PCB layout guidance, and technical support.



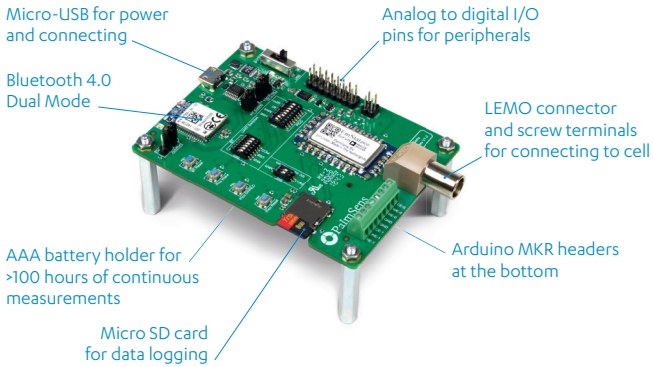
Looking for a high-volume solution?
The EmStat Pico Core is what you need. Contact us to explore how it can fit into your next innovation.

Accelerate Your Electrochemical Innovation

The EmStat Pico Development Kit provides everything needed to support prototyping and accelerate the time-to-market for your embedded electrochemical application ideas.

It features the proven EmStat Pico Module mounted on a development board, ensuring safe handling and easy connection to peripherals or microcontrollers such as Arduino. With direct USB or Bluetooth connectivity, you can run measurements in PSTrace for Windows or wirelessly from iOS and Android devices, automatically generating MethodSCRIPT™ code to enable seamless transition from testing to production—whether on your own PCB or within a PalmSens Market-Ready OEM instrument.

The Kit includes extensive code examples across platforms and languages, making it ideal for developers, researchers, and engineers exploring sensor-based solutions—and a trusted tool to bring your EmStat Pico-powered innovation to life.



› palmsens.com/**picocore**

› palmsens.com/**picodevkit**

Compact Board with EmStat Pico Module controlling 16 to 256 Electrodes

Power
USB-C or 5 V DC supplied through 4-pin male header by host system

Connection
USB-C or TTL serial (Rx/Tx) through 4-pin male header

Dimensions
75 x 75 mm

Electrodes
3 x 16-pin box connectors or optional screw-terminal adapters supporting 16-channel 3-electrode or 256-channel 2-electrode matix modes

Configuration options

EIS capabilities
no EIS | 200 kHz

Software

Platform
Windows

Development tools
PalmSens SDK and MethodSCRIPT

More about software
See pages 19-22

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EMSTAT PICO™ MUX16

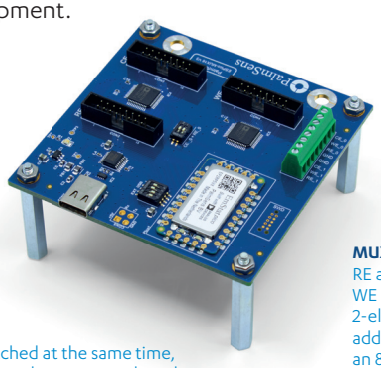
Multiplexed EmStat Pico

The EmStat Pico MUX16 is a compact developer board combining the EmStat Pico Module with a versatile multiplexer, enabling sequential electrochemical measurements across up to 256 channels.

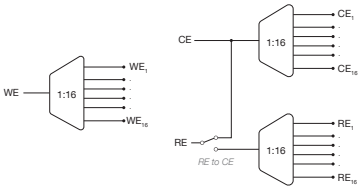
Effortlessly controlled via MethodSCRIPT™ through 8 digital IO lines, in either MUX16 or MUX256 modes (see below), it allows measurements with your own arrays of electrochemical sensors, enabling reproducible workflows on the EmStat Pico MUX16, your own custom PCB, or our Market-Ready OEM instruments.

Electrode connections are made via 16-pin box connectors or optional screw-terminal adapters, offering flexibility for prototyping and lab setups. The board also provides access to a second working electrode, suitable for analysis of FET-based sensors, supporting both transfer and output curve analysis.

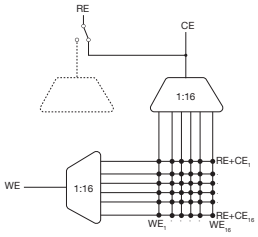
Designed for scalable multiplexed applications, it greatly simplifies your application development.



MUX16 mode
WE, RE and CE are all switched at the same time, allowing 16 individual cells to be connected, each with their own WE, RE and CE.



MUX256 mode
RE and CE are combined, so the WE and RE+CE can be switched in a 2-electrode mode, and 256 channels addressed (the 8 digital IO lines create an 8-bit multiplexer address).



> palmsens.com/picomux16

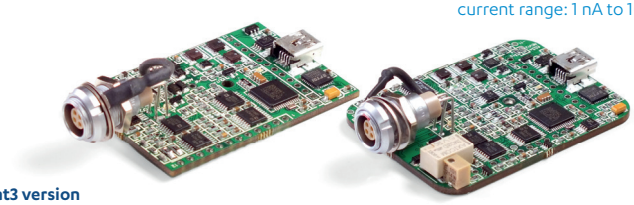
EMSTAT3™ MODULE

Proven Performance for Embedded Applications

The EmStat3 module is a compact and versatile research-grade potentiostat designed for OEM integration and embedded electrochemical applications. It supports a broad range of techniques including voltammetry, amperometry and potentiometry. With compatibility across PalmSens software platforms and support for auto-ranging, the EmStat3 remains a trusted solution for developers seeking dependable electrochemical performance in a streamlined format. Its continued use across diverse applications reflects its reliability and practical value in embedded system design.

- two versions: EmStat3 and EmStat3+
- applied dc-potential resolution: 0.1 mV (0.125 mV for ES3+)
- applied potential accuracy: ≤ 0.2 % max. 2 mV offset (≤ 0.3 % max. 3 mV for ES3+)
- measured potential resolution: 1 mV
- measured potential accuracy: ≤ 0.1 %, max 2 mV offset
- current resolution of 0.1% of current range (1 pA at lowest range)
- current accuracy ≤ 1 % of current range at 1 nA ≤ 0.5 % at 10 nA ≤ 0.2 % at 100 nA to 100 uA ≤ 0.5 % at 1 mA, 10 mA and 100 mA all with max. 0.2 % offset error
- electrometer input impedance 100 GΩ // 4 pF
- supported techniques: LSV, CV, DPV, SWV, NPV, CA, CC, MA, PAD and OCP

EmStat3+ version
potential range: ±4 V
compliance: ±8 V
max. current: ±100 mA
current range: 1 nA to 100 mA (9 ranges)



EmStat3 version
potential range: ±3 V
compliance: ±5 V
max. current: ±20 mA
current range: 1 nA to 10 mA (8 ranges)

› palmsens.com/es3

Research Grade Single-Channel Potentiostat Module for OEM Integration

Power
USB Mini-B or 5 V DC supplied through header pins by host system

Connection
USB Mini-B or serial TTL (Rx/Tx) pins

Dimensions
ES3: 51.5 x 34 mm
ES3+: 55 x 41 mm

Electrodes
1 x WE, 1 x CE, 1 x RE

Configuration options

Version
ES3 | ES3+

EIS capabilities
no

Software

Platform
Windows

Development tools
PalmSens SDK

More about software
See pages 19-22

Supported techniques › page 10
Full specifications › pages 12-13

EMSTAT4M™ MODULE

Compact Single-Channel Potentiostat Module and Impedance Analyzer

Power
USB-C or 5 V DC supplied through header pins by host system

Connection
USB-C or TTL serial (Rx/Tx) through 4-pin male header

Dimensions
62 x 40 x 7 mm

Internal Storage
500 MB

Electrodes
1 x WE, 1 x CE, 1 x RE,
1 x WE Sense (HR version)

Configuration options

Version
LR | HR

EIS capabilities
no EIS | 200 kHz

Software

Platform
Windows

Development tools
PalmSens SDK and MethodSCRIPT

More about software
See pages 19-22

Supported techniques > page 10
Full specifications > pages 12-13

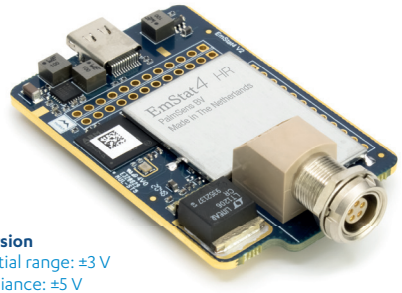
Electrochemical Interface Module with Desktop Performance

The EmStat4M is a compact single-channel Potentiostat, Galvanostat, and optional Frequency Response Analyzer (FRA) that delivers desktop-level performance and supports all standard electrochemical techniques.

Available as a standalone module or in starter and development kits (see opposite page), it comes in Low Range (LR) and High Range (HR) versions covering ranges from 1 nA to 100 mA, with optional EIS up to 200 kHz. Use PSTrace for Windows to evaluate the module, or build custom applications with MethodSCRIPT™ or our SDKs, compatible across platforms and languages.

Proven in mobile research instruments like the EmStat4T, the EmStat4M is ideal for rapid prototyping and embedded integration into your own electrochemical solutions.

- 10 µHz to 200 kHz FRA (EIS)
- 1 mV to 900 mV rms (2.5 V p-p) EIS ac-amplitude range
- electrometer bandwidtch 10 kHz default or 500 kHz for EIS or fast CA/CP
- current resolution of 0.009% of current range (92 fA at 1 nA range)
- current accuracy < 0.2% at Full Scale Range
- electrometer input impedance > 1 TΩ // 10 pF
- 1 M samples/s max. data acquisition rate
- supported techniques: LSV, CV, FCV, ACV, DPV, SWV, NPV, CA, ZRA, CC, MA, FAM, PAD, MPAD, LSP, CP, MP, OCP, SCP, EIS and GEIS.



HR version
potential range: ±6 V
compliance: ±8 V
max. current: ±200 mA
current range: 100 nA to 100 mA (7 ranges)

LR version
potential range: ±3 V
compliance: ±5 V
max. current: ±30 mA
current range: 1 nA to 10 mA (8 ranges)

> palmsens.com/es4m

Start Developing with the EmStat4M

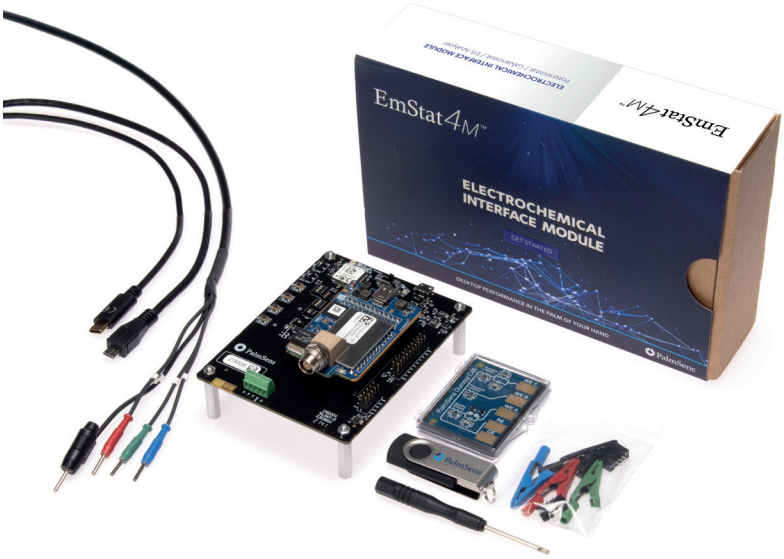
The EmStat4M Development Kit features our proven EmStat4M module mounted on a versatile Development Board and is designed to enable its safe handling and simplify connection to peripherals and microcontrollers like Arduino greatly expanding its capabilities.

The Development Kit includes a sensor cable, software, and the Development Board which offers extra peripherals including:

- Bluetooth wireless communication module (Laird BT900)
- Support for a LiPo battery, incl. charging
- Pin headers for an MKR-series Arduino
- Breakout EmStat4M GPIO pins for easy connection
- Screw terminals for easy wire connections
- I2C real-time clock (RTC)
- Push buttons for triggering / testing

Featuring integrated Bluetooth connectivity and a rechargeable battery, the EmStat4M Development Kit delivers true portability and wireless operation—ideal for fieldwork, mobile diagnostics, and untethered lab setups. These built-in capabilities support seamless data transfer and extended runtime without reliance on external power or cables, making it a versatile platform for OEMs developing standalone or remote electrochemical devices.

With extensive code examples across multiple languages and platforms, along with open schematics, the Kit empowers researchers, engineers, and developers to accelerate the creation of embedded electrochemical solutions—whether integrating them into their own custom PCB or building on our Market-Ready OEM instruments.

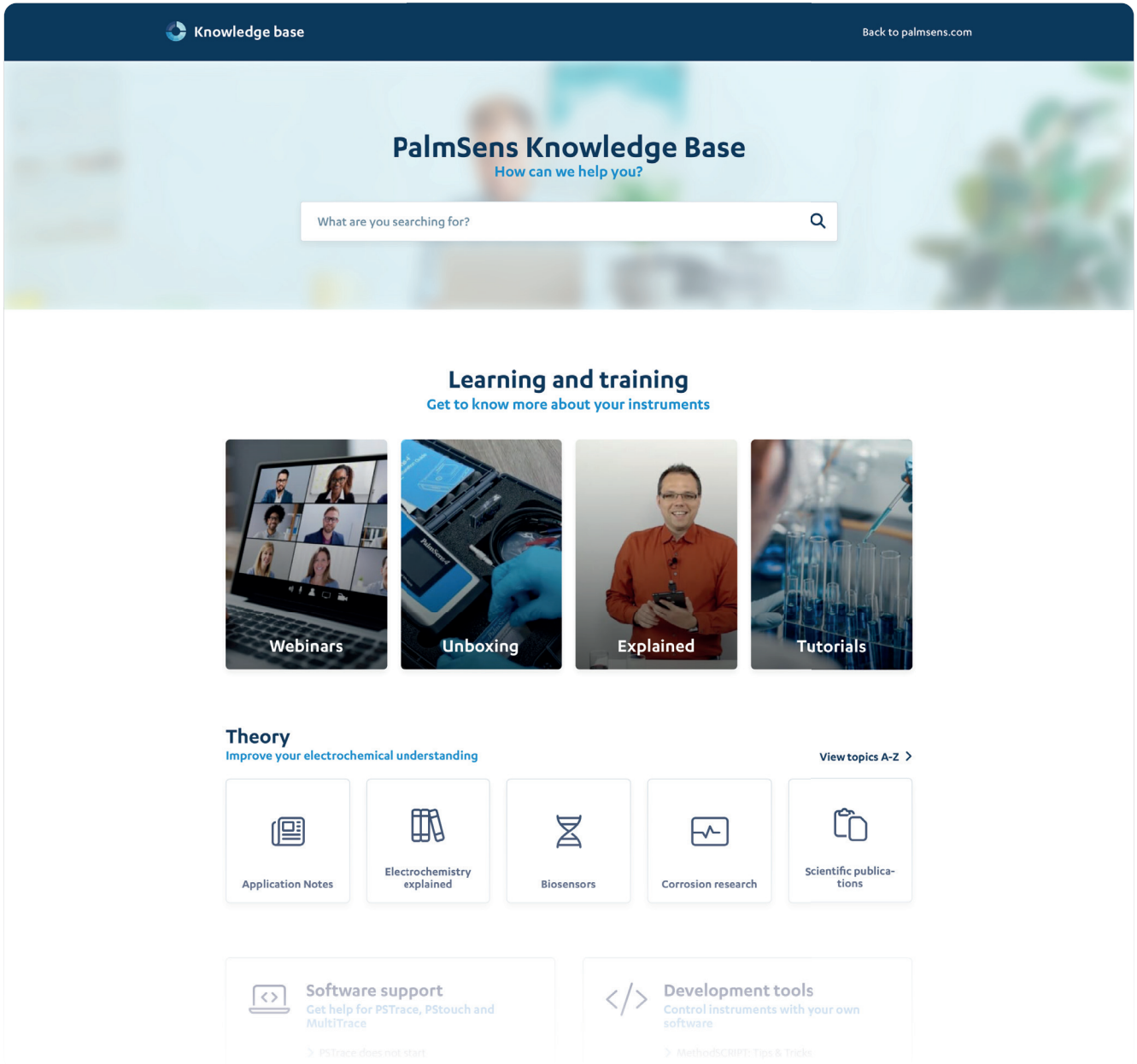


	Module Only	Starter Kit	Developer KIt
EmStat4M LR or HR module	✓	✓	✓
Development board	-	-	✓
USB-C cable	-	✓	✓
USB-C splitter cable for extra power (EmStat4M HR only)	-	✓	✓
Sensor cable (1 meter with 2 mm pins)	-	✓	✓
4 or 5 croc clips	-	✓	✓
Dummy cell	-	✓	✓
PSTrace software for Windows (on USB drive)	-	✓	✓
Quick start document	-	✓	✓
Calibration report	-	✓	✓

› palmsens.com/**es4m-dev**

Supported Techniques

		EmStat Pico module/ Sensit series	EmStat3 module	EmStat4 module
Voltammetric techniques				
Linear Sweep Voltammetry	LSV	✓	✓	✓
Cyclic Voltammetry	CV	✓	✓	✓
Fast Cyclic Voltammetry	FCV	-	-	✓
AC Voltammetry	ACV	-	-	✓
Pulsed techniques				
Differential Pulse Voltammetry	DPV	✓	✓	✓
Square Wave Voltammetry	SWV	✓	✓	✓
Normal Pulse Voltammetry	NPV	✓	✓	✓
These methods can all be used in their stripping modes which are applied for (ultra) trace analysis				
Amperometric techniques				
Chronoamperometry	CA	✓	✓	✓
Fast Amperometry	FAM	-	-	✓
Zero Resistance Amperometry	ZRA	-	✓	✓
Chronocoulometry	CC	-	✓	✓
Multistep Amperometry	MA	✓	✓	✓
Pulsed Amperometric Detection	PAD	✓	✓	✓
Galvanostatic techniques				
Linear Sweep Potentiometry	LSP	-	-	✓
Chronopotentiometry	CP	-	-	✓
Multistep Potentiometry	MP	-	-	✓
Open Circuit Potentiometry	OCP	✓	✓	✓
Impedance Spectroscopy				
at fixed frequency or frequency scan vs	EIS / GEIS	✓	-	✓
- fixed potential or fixed current				
- scanning potential or scanning current				
- time				
Fast EIS/GEIS	FEIS / FGEIS	-	-	✓
- very low interval fixed-frequency measurements				
Other				
Mixed Mode	MM	✓	✓	✓
Custom techniques (MethodSCRIPT)	SANDBOX	✓	-	-



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Technical Specifications

	EmStat Pico module/ Sensit series*	EmStat3 module	EmStat3+ module	EmStat4 LR module	EmStat4 HR module
General					
maximum output current	±3 mA	±20 mA	±100 mA	±30 mA	±200 mA
maximum output voltage (compliance)	-2.0 to +2.3 V	±5 V	±8 V	±5 V	±8 V
applied dc-potential range	-1.7 to +2.0 V	±3 V	±4 V	±3 V	±6 V
Potentiostat					
applied dc-potential resolution	395 µV	100 µV	100 µV	100 µV	183 µV
applied dc-potential accuracy	< 0.2% of value ±1 mV (offset)	≤ 0.2% of value ±2 mV (offset)	≤ 0.3% of value ±3 mV (offset)	< 0.2% of value ±1 mV (offset)	< 0.2% of value ±1 mV (offset)
current ranges	100 nA to 5 mA	1 nA to 10 mA (8 ranges)	1 nA to 100 mA (9 ranges)	1 nA to 10 mA (8 ranges)	100 nA to 100 mA (7 ranges)
current measured in range	±0.6 × current range	±1.0 × current range	±1.0 × current range	±3 × current range	±3 × current range, ±2 × current range (100 mA)
measured current resolution	0.006% of current range (5.5 pA on 100 nA range)	0.1% of current range (1 pA at lowest range)	0.1% of current range (1 pA at lowest range)	0.009% of current range (92 fA on 1 nA range)	0.009% of current range (9.2 pA on 100 nA range)
measured current accuracy	< 0.5% of value ±0.1% of range (offset)	< 0.5%	< 0.5%	< 0.2% of value ±20 pA (bias) ±0.2% of range (offset)	< 0.2% of value ±0.2% of range (offset)
Galvanostat					
current ranges	n/a	n/a	n/a	10 nA, 1 uA, 100 uA, 10 mA (4 ranges)	1 uA, 100 uA, 10 mA, 100 mA (4 ranges)
applied dc-current range	n/a	n/a	n/a	±3 × current range	±3 × current range, ±2 × current range (100 mA)
applied dc-current resolution	n/a	n/a	n/a	0.01% of current range	0.0183% of current range
potential ranges	n/a	n/a	n/a	50 mV, 100 mV, 200 mV, 500 mV, 1 V	50 mV, 100 mV, 200 mV, 500 mV, 1 V
measured dc-potential resolution	56 µV (OCP only)	100 µV (OCP only)	100 µV (OCP only)	96 µV, 48 µV, 19.2 µV, 9.6 µV, 4.8 µV (5 gains)	193 µV, 96.5 µV, 38.5 µV, 19.3 µV, 9.65 µV (5 gains)
measured dc-potential accuracy	< 0.2% of value ±1 mV (offset) (OCP only)	< 0.1% of value ±2 mV (offset)	< 0.1% of value ±2 mV (offset)	< 0.2% of value ±1 mV (offset)	< 0.2% of value ±1 mV (offset)
FRA / EIS					
frequency range	200 kHz to 0.016 Hz	n/a	n/a	200 kHz to 10 µHz	200 kHz to 10 µHz
applied amplitude	1 mV to 0.25 Vrms	n/a	n/a	1 mV to 0.8 Vrms	1 mV to 0.8 Vrms

Please refer to the product page of each model on our website for more detailed specifications.
* Some specifications for the Sensit-series depend on the device model and the Mode it is in.

	EmStat Pico module/ Sensit series*	EmStat3 module	EmStat3+ module	EmStat4 LR module	EmStat4 HR module
FRA / GEIS					
frequency range	n/a	n/a	n/a	200 kHz to 10 µHz	200 kHz to 10 µHz
applied amplitude	n/a	n/a	n/a	0.002 × current range to 0.9 × current range rms	0.002 × current range to 0.9 × current range rms
Electrometer					
bandwidth	250 kHz	35 kHz	35 kHz	500 kHz	500 kHz
electrometer amplifier input	> 1 TΩ // 10 pF	> 100 GΩ // 4 pF	> 100 GΩ // 4 pF	> 1 TΩ // 10 pF	> 1 TΩ // 10 pF
Data acquisition					
max. offline rate (to buffer)	n/a	n/a	n/a	1M points/s (max. 50k points)	1M points/s (max. 50k points)
max. online rate	1000 points/s	1000 points/s	1000 points/s	2500 points/s	2500 points/s
ADC/DAC	16-bit	16-bit	16-bit	16-bit	16-bit
More specifications					
electrode connections	WE, WE2, CE, RE, Ground	WE, CE, RE, Ground	WE, CE, RE, Sense, Ground	WE, CE, RE, Ground	WE, CE, RE, Sense, Ground
internal storage	SD card compatible	n/a	n/a	500 MB	500 MB

	EmStat Pico module/ Sensit series*	EmStat3 module	EmStat4 module
Auxiliary Port			
analog input	±2.2 V, 16-bit	±5 V, 12-bit	±10 V, 16-bit
analog output	0.2–2.4 V, 12-bit	0 - 3.3 V, 12-bit	0-6 V, 12-bit
digital I/O	8x digital input/output (3.3 V)	6x digital input/output (3.3 V)	4x digital output (3.3 V)
E-monitor	E-out ±2.2	n/a	1x digital input (3.3 V)
i-monitor	i-out ±2.2 V	n/a	E-out is scaled to value between 0 and 3 V,
power	3.3 V-output	5 V-output (max. 300 mA)	centered around 1.5 V

Potentiostat
Galvanostat
Impedance Analyzer

Power
USB-C or internal LiPo battery

Connection
Bluetooth and USB-C

Dimensions
13.0 x 6.2 x 3.3 cm

Weight
400 g

Internal Storage
500 MB

Electrodes
WE, CE, RE, Ground
SNS: 1 m cable with 2 mm banana conn.
SPE: Connector for screen-printed electrodes

Configuration options

Version
SNS | SPE

EIS Capabilities
no EIS | 200 kHz

Software

Platform
Windows | Android

Development tools
PalmSens SDK
and MethodSCRIPT

More about software
See pages 19-22

Supported techniques > page 10
Full specifications > pages 12-13

EMSTAT4T™

Customizable Compact Potentiostat with a Touchscreen

The EmStat4T is a compact, handheld potentiostat with a fully customizable touchscreen interface—ideal for developers and OEMs seeking a flexible, rebrandable platform for electrochemical sensing. It supports most electrochemical techniques in both standard operation and custom workflows built in PSTrace for Windows, enabling standalone use without a PC or mobile device. Available in two configurations (SPE and SNS), the EmStat4T offers:

- FRA / EIS: 10 µHz up to 200 kHz
- 1 µs interval data acquisition
- Integrated connector for Screen-Printed Electrodes (SPE version)
- programmable touchscreen using custom apps for standalone operation
- integrated QR and barcode scanner

Its portable design, rechargeable battery, and wireless capabilities make it ideal for point-of-care diagnostics, fieldwork, and embedded lab instruments. The intuitive interface supports users of all experience levels, enabling interdisciplinary collaboration across fields such as biosensing, environmental monitoring, and materials science.

OEMs benefit from reduced development time, branding flexibility, and a proven hardware-software ecosystem for rapid prototyping and scalable deployment.

palmsens.com/es4t

EMSTAT GO™

EmStat Pico or EmStat4M in a Portable Rugged Form

The EmStat GO is a rugged, battery-powered handheld potentiostat designed for mobile electrochemical sensing and OEM customization. It consists of a standard base unit paired with a customer-specific Sensor Extension Module, which can be configured with sensor connectors, multiplexing capabilities, temperature sensors, or other interface components tailored to your application. Measurements are performed using either the integrated EmStat Pico or EmStat4M LR module, depending on your performance needs.

Available in both standard and ruggedized versions, the EmStat GO supports wireless communication via Bluetooth, USB-C charging, and compatibility with PSTrace and MethodSCRIPT. Its modular design and fully rebrandable housing allow OEMs to customize both the functionality and appearance of the device, enabling rapid deployment of sensor-based products in field settings, point-of-care diagnostics, and portable lab environments.

- Integrated connector for Screen-Printed Electrodes (SPE version)
- Auxiliary port for peripherals and integration
- >6 hour battery life (with cell on at 10 mA current)

The EmStat GO can be re-branded and customized for OEM purposes. Contact us about the possibilities.

EmStat Pico version
potential range: -1.7 V to +2 V
compliance: -2.0 V to +2.3 V
max. current: ±3 mA
current range: 100 nA to 5 mA
FRA (EIS): 0.016 Hz to 200 kHz

EmStat4M LR version
potential range: ±3 V
compliance: ±5 V
max. current: ±30 mA
current range: 1 nA to 10 mA
FRA (EIS): 10 µHz to 200 kHz

› palmsens.com/go

Potentiostat Galvanostat Impedance Analyzer

Power
USB-C or internal LiPo battery

Connection
USB-C or Bluetooth (optional)

Dimensions
11.8 x 6.9 x 3.3 cm

Weight
250 g

Internal Storage
500 MB

Electrodes
WE, CE, RE, Ground
SNS: 1 m cable with 2 mm banana conn.
SPE: Connector for screen-printed electrodes

Configuration options

Version
Pico | EmStat4M LR

Max. frequency for EIS
no EIS | 200 kHz

Software

Platform
Windows | Android

Development tools
PalmSens SDK and MethodSCRIPT

More about software
See pages 19-22

Supported techniques › page 10
Full specifications › pages 12-13

SENSIT BT™

Potentiostat Impedance Analyzer

Power
USB-C or internal LiPo battery

Connection
Bluetooth and USB-C

Dimensions
7.5 x 5.5 x 2.3 cm

Weight
75 g

Internal Storage
500 MB

Electrodes
WE, CE, RE, Ground
SNS: 30 cm cable with 2 mm banana conn.
SPE: Connector for screen-printed electrodes

Configuration options

Version
SNS | SPE

EIS capabilities
no EIS | 200 kHz

BiPotentiostat included
yes (SNS version)

Software

Platform
Windows | Android

Development tools
PalmSens SDK and MethodSCRIPT

More about software
See pages 19-22

Ideal For Electrochemical Sensor Applications

The Sensit BT is a compact, battery-powered potentiostat designed for wireless electrochemical measurements and OEM integration. It connects via Bluetooth or USB-C to a smartphone, tablet, or PC, making it ideal for mobile sensing, point-of-care diagnostics, and field-based applications. It is available in two configurations: SPE for screen-printed electrodes and SNS with a cable and 2 mm banana plugs for flexible cell connections.

Built around the EmStat Pico module, the Sensit BT supports a wide range of electrochemical techniques and offers bipotentiostat functionality in the SNS version for dual working electrode setups. With compatibility for PSTrace and support for MethodSCRIPT, developers can implement custom workflows for specific sensing tasks.

OEMs can rebrand and customize the Sensit BT to align with their product identity. Its lightweight design, rechargeable battery, and wireless connectivity make it a versatile platform for rapid deployment of sensor-based solutions across healthcare, environmental monitoring, and other mobile electrochemical applications.

- ±3 mA maximum current
- FRA / EIS up to 200 kHz
- Potential range of -1.7 V to +2 V
- Bipotentiostat for second WE (SNS version)
- Ideal for use with a smartphone

The Sensit BT can be re-branded for OEM purposes. Contact us about the possibilities.

SNS version
for use with standard cell cable

SPE version
for use with screen-printed electrodes

palmsens.com/bt

Supported techniques > page 10
Full specifications > pages 12-13

SENSIT SMART™

Compact Potentiostat for Mobile Applications

The Sensit Smart is the world's smallest market-ready potentiostat, purpose-built for mobile electrochemical sensing. Designed for seamless integration with smartphones, tablets, and PCs, it connects directly to Android devices via USB-C and is controlled using the intuitive PStouch app. For desktop use, it can be operated via PSTrace software, which includes dedicated modes for scientific research, corrosion analysis, and sensor-based measurements. Despite its ultra-compact form factor, the Sensit Smart supports a wide range of electrochemical techniques and is compatible with common screen-printed electrodes and sensors, making it ideal for applications such as environmental monitoring, point-of-care diagnostics, and biosensor development.

At the heart of the Sensit Smart is the EmStat Pico module — a proven and calibrated electrochemical interface jointly developed by PalmSens and Analog Devices. This foundation ensures reliable performance and enables full control via MethodSCRIPT or available software development kits (SDKs), allowing developers to tailor measurement workflows and integrate the device into custom mobile or embedded platforms. The Sensit Smart is available in a rebranded housing for OEM purposes, offering a fast and flexible route to market for portable electrochemical solutions.

- ±3 mA maximum current
- FRA / EIS up to 200 kHz
- Potential range of -1.7 V to +2 V
- Ideal for use with a smartphone

The Sensit Smart can be re-branded for OEM purposes. Contact us about the possibilities.

› palmsens.com/smart

Potentiostat Impedance Analyzer

Power
USB-C

Connection
USB-C

Dimensions
4.3 x 2.5 x 1.1 cm

Weight
15 g

Electrodes
WE, CE, RE, Ground
Connector for screen-printed electrodes

Configuration options

EIS capabilities
no EIS | 200 kHz

BiPotentiostat included
no

Software

Platform
Windows | Android

Development tools
PalmSens SDK
and MethodSCRIPT

More about software
See pages 19-22

Supported techniques › page 10
Full specifications › pages 12-13

Potentiostat Impedance Analyzer

Power
USB-C or internal battery

Connection
Bluetooth and USB-C

Dimensions
3.5 x 3.5 x 1.2 cm

Weight
10 g

Internal Storage
14 MB

Electrodes
WE, WE2, CE, RE, AUX, Ground Spring-loaded pins

Software

Platform
Windows | Android

Development tools
MethodSCRIPT

More about software
See pages 19-22

Supported techniques > page 10
Full specifications > pages 12-13

SENSIT WEARABLE™

Potentiostat For Wearable Biosensors

The Sensit Wearable is a compact, battery-powered wireless potentiostat designed to support the development and validation of wearable electrochemical biosensors.

Built around the proven EmStat Pico Core, co-developed by PalmSens and Analog Devices Inc., it supports a wide range of techniques. Weighing just 10 grams, it features an onboard battery, low-power modes, and wireless communication for extended operation with flexible sensors monitoring metabolites and electrolytes in non-invasive biomedical applications.

It can be controlled via PSTrace with no programming, or customized using MethodSCRIPT to enable deep-sleep and idle modes for long-term measurements. With Bluetooth Low Energy and an open-source SDK, it integrates seamlessly with Android and iOS apps. Onboard data logging and internal storage allow autonomous operation, making it ideal for mobile health and point-of-care solutions.

The Sensit Wearable enables rapid prototyping and is a strong fit for OEMs developing next-generation diagnostic and monitoring devices.

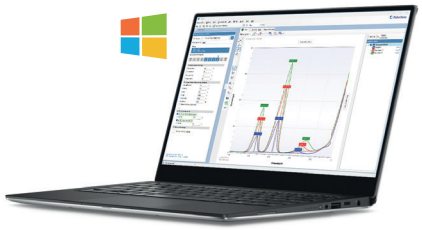
- current ranges 100 nA - 5 mA (max. ±3 mA)
- FRA / EIS up to 200 kHz
- Potential range of -1.7 V to +2 V
- Works wireless and autonomous, battery powered
- Fully programmable with MethodSCRIPT™
- Low-power modes for > 1 week of battery life

A complete Development Kit with all necessary tools and accessories is available to help OEMs and developers get the most out of the SenSit Wearable and to reduce time-to-market for their wearable sensor solutions. Contact us to discuss your requirements.

> palmsens.com/senwb

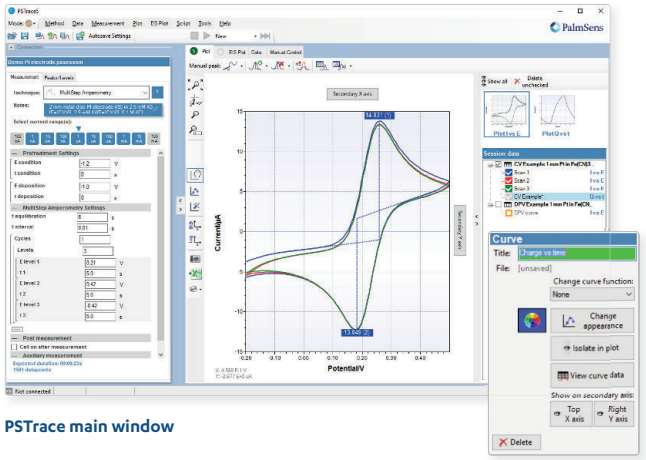
PSTrace

All our instruments and EmStat development kits come with the PSTrace software for Windows. PSTrace provides support for all techniques and instrument functionalities. The interface of PSTrace is designed to easily handle many curves in a single window.



PSTrace features:

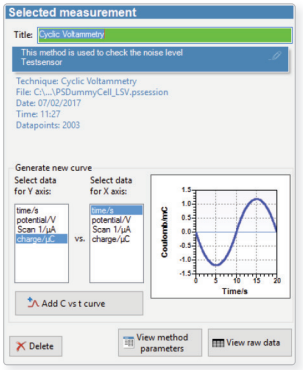
- Automated and manual peak and level find
- Curve addition and subtraction (e.g. with a measured blank)
- Advanced baseline subtraction
- Savitzky Golay smoothing
- Equivalent Circuit Fitting for Impedance Spectroscopy
- Export data to Excel and Origin with one mouse click
- Trace Analysis
- Corrosion Analysis
- Scripting for running a sequence of methods and commands



PSTrace main window

Minimum System Requirements

- Windows 8, 10 or 11
- 64-bit (x64) processor with 4 GB RAM
- Screen resolution of 1280 x 800 pixels



Click on a measurement in the legend to see all available data and to generate different curves.

See PSTrace in action › palmsens.com/software/tutorials

› palmsens.com/pstrace

PStouch

PStouch is an app for Android devices that can be used with our PalmSens4, EmStat4-series and Sensit-series instruments. PStouch can communicate with your potentiostat via USB or via Bluetooth. All method and curve files are fully compatible with PSTrace software for Windows.

PStouch features:

- Connecting via Bluetooth or USB
- Setting up and running measurements
- Loading and saving measured curves
- Analysing and manipulating peaks
- Sharing measurement data directly via any service like email or Dropbox
- Concentration determination by means of Standard Addition or Calibration Curve
- Support for PalmSens accessories such as a Multiplexer or Stirrer
- All method and curve files are fully compatible with PSTrace software for Windows

SCAN with your phone

GET IT ON Google Play

Perform measurements in the field,

and share data instantly with colleagues in the lab

› palmsens.com/**pstouch**

Integrate Electrochemistry into Your Own Applications

Seamless Instrument Control

- Access all PalmSens potentiostats (single- and multi-channel) through our SDKs.
- Full control of measurement techniques, data acquisition, and real-time analysis.

Cross-Platform Support

- **Python SDK**
  script and automate experiments across platforms.
- **Windows .NET SDK**
  Easily integrate in C#, VB.NET, or any .NET language.
- **Android & iOS SDKs**
  Build mobile apps to run PalmSens instruments in the field.
- **LabVIEW & MATLAB examples**
  Quick start for engineers and researchers.

Accelerate Development

- Pre-built code samples
- Clear documentation & active support
- Sample apps to get started within minutes

PalmSens SDKs
put you in control
from the lab to the field

python™

MATLAB LabVIEW Microsoft .NET

› palmsens.com/**sdk**

MethodSCRIPT™

The MethodSCRIPT™ scripting language is designed to give full control over your electrochemical experiment or setup.

The simple script language is parsed on-board the instrument and allows for running all supported electrochemical techniques, making it easy to combine different measurements and other tasks.

Generated in PSTrace

No DLLs or other type of code libraries are required for MethodSCRIPT. You can edit and run the MethodSCRIPTs as generated in PSTrace or copy them to your own code project in another environment.

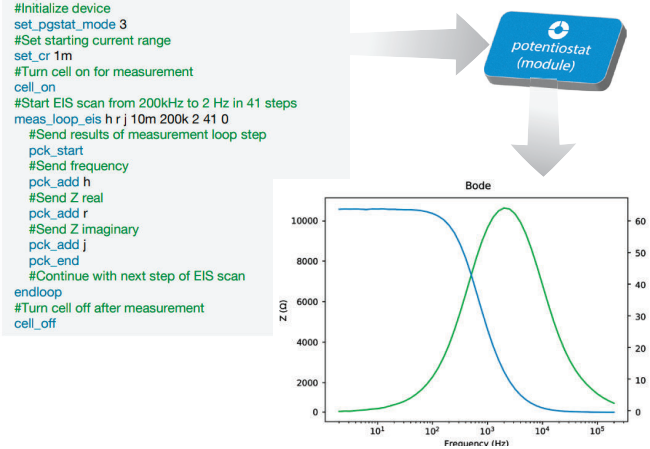
MethodSCRIPT features include:

- (Nested) loops and conditional logic support
- Exact timing control
- Entering or waking up from low-power (sleep) mode
- Logging results to internal storage or external SD card
- Simple math operations on variables (add, sub, mul, div)
- Digital I/O, e.g. for using an external trigger
- Reading auxiliary values like pH or temperature
- and many more...

Supported by

- Nexus
- EmStat4-series
- Sensit-series

```
e
#Declare variables
var h
var r
var j
#Initialize device
set_pgstat_mode 3
#Set starting current range
set_cr 1m
#Turn cell on for measurement
cell_on
#Start EIS scan from 200kHz to 2 Hz in 41 steps
meas_loop_eis h r j 10m 200k 2 41 0
   #Send results of measurement loop step
   pck_start
   #Send frequency
   pck_add h
   #Send Z real
   pck_add r
   #Send Z imaginary
   pck_add j
   pck_end
   #Continue with next step of EIS scan
endloop
#Turn cell off after measurement
cell_off
```



Example MethodSCRIPT for running an EIS measurement

Code examples are available for:

.NET C/C++ Java Swift python ARDUINO

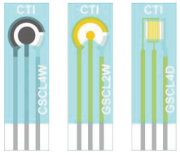
› palmsens.com/methodscript

Sensors and Screen-Printed Electrodes

PalmSens BV provides Screen-Printed Electrodes (SPEs) from different suppliers. This page gives an overview of the most popular suppliers. For a complete overview please visit our website.

CTI

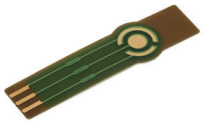
- Available in Gold and Carbon
- Plasma treated gold sensors
- Best gold sensor in our tests
- Scalable to high volumes



Country of origin: USA
CTI support early stage development in the design of an assay for measurement of electrochemical signals between test fluids and a targeted analyte via a potentiostat. They support iterative testing of reagent mixtures used in the detection of unique analytes within biological samples.

Linxens

- Soft gold plating finish on RE, CE and WE
- Low charge transfer resistance
- Outstanding reproducibility



Country of origin: France
The Linxens Gold Electrodes are designed for single-use applications with a focus on signal quality, repeatability and cost efficiency. The photolithographic production gives the sensor an outstanding reproducibility, with a relative standard deviation below 2%. Linxens has produced over 500 million biosensor electrodes and is specialized in creating scalable solutions.

iGii

- 3D carbon nanostructure
- Higher accuracy in comparison to carbon sensors
- Scalable to high volumes

Country of origin: Scotland (UK)
iGii manufactures Gii – a pure 3D carbon nanomaterial that sets new standards for cost-efficiency, sustainability, supply chain security and scalability.

ItalSens

- Available in Gold and Carbon
- Economic solution
- Scalable to high volumes

Country of origin: Italy
The ItalSens Sensors, formerly known as Florence Sensors, are based on years of research experience and are delivered in uncut strips of 20 electrodes. They provide cost effective screen printed carbon and gold electrodes.

Micrux

- Available in Gold & Carbon.
- High performance ink with excellent intra- and inter-electrode precision
- Low cost ink for basic electrochemistry

Country of origin: Spain
MicruX develops innovative microfluidic platforms, electrochemical sensors based on Lab-on-a-Chip (LOC) Technologies for research & industrial activities. Micrux provides two types of substrate: white flexible PET and rigid ceramic.

Worldwide Distribution Network

PalmSens BV has more than 50 distributors all around the world.
Please contact us at info@palmsens.com or go to our website to get in touch with a distributor in your region.

PalmSens

www.palmsens.com