FECHA:	Septiembre 9 de 2.025
EMPRESA:	Servicio Geológico Colombiano
CONTACTO:	Juan Diego Escobar
E-MAIL:	jescobarm@sgc.gov.co
TELEFONO:	314 8663113

CIUDAD:	Bogotá
N° OFERTA :	17.558B
ENTREGA:	30 días
VALIDEZ:	60 días
MONEDA:	Pesos Colombianos
TÉRMINOS DE NEGOCIACIÓN:	DDP Bogotá

Respetados Señores:

CECOLTEC SAS, como representantes autorizados exclusivos de Palmsens BV (www.palmsens.com) se complace en presentar el siguiente equipo para su consideración:

Electrochemical Interfaces

PalmSens develops and sells instruments for electrochemical applications and sensors. With over 10 years experience and innovation within the electrochemical community we specialize in making small, portable potentiostats.

Item 1:

PalmSens4



Electrochemical Impedance Spectroscopy (EIS). The PalmSens4 has a large potential range -10V to 10V) and current range (100 pA to 10 mA) with a high resolution and low noise. This instrument is a complete laboratory instrument but its compact and rugged design makes it also ideal for field work.

- Potentiostat / Galvanostat / Impedance Analyzer
- FRA / EIS: 10 µHz up to 1 MHz
- 9 current ranges: 100 pA to 10 mA
- High resolution of 0.006 % full scale range
- ±10 V potential range at 75 µV resolution (18 bit)
- USB and battery powered
- Always a backup of your data with 4 GB of internal storage

Portable potentiostat

Potentiostatic polarization

Cyclic polarization

Corrosion potential measurements

Tafel plot analysis

Corrosion rate determination

Zero Resistance Ammeter (ZRA)

Wireless control (Bluetooth)

Control of peripherals

Electrochemical Impedance Spectroscopy (EIS)

Galvanostatic polarization

Standard included with a PalmSens4:

- high quality, double shielded cell cable
- 2 mm banana connectors for working, counter, reference electrode and ground
- mini-crocodile clips
- USB cable
- Dummy cell
- Software PSTrace: Our software is designed to work with the user, giving lots of informative feedback and making options and functions only available when they're applicable. This allows users with different backgrounds and skills to use our instruments to their full potential.

Techniques

Voltammetric techniques:

- Linear Sweep Voltammetry (LSV)
- Differential Pulse Voltammetry (DPV)
- Square Wave Voltammetry (SWV)
- Normal Pulse Voltammetry (NPV)
- AC Voltammetry (ACV)
- Cyclic Voltammetry (CV)

These methods can all be used in their stripping modes which are applied for (ultra-) trace analysis.

- Stripping chronopotentiometry (PSA or SCP)

Technique as a function of time:

- Chronoamperometry (CA)
- Pulsed Amperometric Detection (PAD)
- Multiple Pulse Amperometry (MPAD)
- Fast amperometry (FAM)
- Chronopotentiometry (CP)
- Open Circuit Potentiometry (OCP)
- Multistep Amperometry (MA)
- Multistep Potentiometry (MP)
- Mixed Mode (MM)

Impedance spectroscopy / EIS:

- Potential scan
- Time scan

Scans can be made at a fixed frequency or with a frequency scan.

- Fixed potential

Specifications:

General	
dc-potential range	± 10 V
compliance voltage	± 10V
maximum current	± 30 mA (typical)
max. acquisition rate	150,000 data points/s
Potentiostat (controlled potential mode)	
applied dc-potential resolution	75 µV
applied potential accuracy	≤ 0.1% ± 1 mV offset
current ranges	100 pA to 10 mA (9 ranges)
current accuracy	≤ 0.1 % (at Full Scale Range)
measured current resolution	0.006 % of current range (5 fA on 100 pA range)
Galvanostat (controlled current mode)	
current ranges	1 nA to 10 mA (8 ranges)
applied dc-current range	± 6 times applied current range
applied dc-current resolution	0.005 % of applied current range
measured dc-potential accuracy	75 µV at ± 10 V 7.5 µV at ± 1 V 0.75 µV at ± 0.1 V
FRA / EIS (impedance measurements)	
frequency range	10 µHz to 1 MHz (or 10 µHz to 100 kHz)

ac-amplitude range	1 mV to 0.25 V rms, or 0.6 V p-p
Electrometer	
electrometer amplifier input	> 1 TΩ // 10 pF
bandwidth	1 MHz
Other	
housing	aluminium with rubber sleeve: 15.7 x 9.7 x 3.5 cm^3
weight	500 g
temperature range	0 °C to + 50 °C
power supply	USB or internal LiPo battery
communication	USB and Bluetooth
battery time	> 16 hours idle time > 4 hours with cell on at max. current Extendable by means of power bank
internal storage space	4 GB or +/- 400000 measurements incl. method info (assuming 200 data points per measurement)
Auxiliary port (D-Sub 15)	
analog input	± 10 V, 18 bit
analog output	0-10 V, 12 bit (1 kOhm output impedance)
4 digital outputs	0-3.3 V
1 digital input	0-3.3 V (5 V tolerant)
I-out and E-out	raw output of current and potential E-out ± 10 V (1 kOhm output impedance) I-out ± 6 V (1 kOhm output impedance)

Power	5 V output (max. 150 mA)

The current is measured using a zero resistance ammeter (ZRA).

Extensions

Main extensions for PalmSens4:

- Multiplexer for using up to 8 or 16 cells with one potentiostat
- Pt1000 temperature sensor.
- Magnetic stirrer for stripping analysis applications.
- USB galvanic isolator for floating measurements.
- Differential Electrometer Amplifier (DEA) for use as floating voltage amplifier with differential input and single output for measuring an auxiliary signal between -5 to +5 V or -10 to +10 V.

Item 2:

Sensit Smart



- Smartphone potentiostat capable of EIS up to 200 kHz
- Built around the EmStat Pico module
- Potential range -1.7 to +2 V
- Current ranges 100 nA – 5 mA (max ±3 mA)

Description

WITH INTEGRATED EmStat pico Built with ANALOG DEVICES

The Sensit Smart is the world smallest ready-to-go potentiostat available on the market. The Sensit Smart can be directly inserted in a smartphone or tablet and controlled via the Android app PStouch. You can use the USB-C Female to USB-A cable to connect the Sensit Smart to a classic USB port on your PC and control the Sensit Smart via our PC software PSTrace.

The Sensit Smart supports most common electrochemical techniques, including Cyclic Voltammetry, Square Wave Voltammetry and Impedance Spectroscopy (FRA/EIS).

The Sensit Smart comes with:

- Dummy Cell (SPE version)
- SPE to screw-terminal adapter

- USB-C Female to USB-A cable
- USB-C Female to Micro USB adapter
- USB-C port protector
- PSTrace software for Windows (activation code for my.palmsens.com)
- PStouch app for Android (find it in the Google Play Store)

Compatible with most common Screen Printed Electrodes / Sensors

Sensor pitch:	2.54 mm
Electrode connections:	RE, WE, CE
Allowed sensor thickness:	Between 0.1 mm and 0.8 mm
Maximum sensor width:	11 mm

Techniques

The following techniques are supported by the Sensit Smart

Voltammetric techniques:

- Linear sweep voltammetry (LSV)
- Cyclic voltammetry (CV)
- Square wave voltammetry (SWV)
- Differential pulse voltammetry (DPV)
- Normal pulse voltammetry (NPV)

These methods can all be used in their stripping modes which are applied for (ultra-) trace analysis.

Techniques as a function of time:

- Chronoamperometry (CA)
- Pulsed amperometric detection (PAD)
- Open circuit potentiometry (OCP) • Multistep amperometry (MA)

Electrochemical Impedance Spectroscopy:

- Scanning or fixed frequency mode (EIS) *Specifications*

The Sensit Smart works at three different modes;

- Low Speed mode: for scan rates up to 1 V/s or a bandwidth of 100 Hz.
- High Speed mode: for high scan rates and frequencies.
- Max Range mode: a combination of the Low and High Speed modes for optimal dynamic dc-potential range.

	Low Speed mode	High Speed mode	Max Range mode
General			
Full dc-potential range	-1.2 to +2 V	-1.7 to +2 V	-1.7 to +2 V
Dynamic dc-potential range [1]	2.2 V	1.2 V	2.6 V
Compliance voltage	-2.0 to +2.3 V [2]		
Maximum current	± 3 mA		
Max. acquisition rate (datapoints/s)	100	1000	100
Supports FRA/EIS	NO	YES	NO
Potentiostat (controlled potential mode)			
Channels	1 (1x WE, 1x RE and 1x CE)		
Applied dc-potential resolution	537 µV	395 µV	932 µV
Applied potential accuracy	< 0.2%	< 0.5%	< 0.5%
Current ranges	100 nA, 2 uA, 4 uA, 8 uA, 16 uA, 32 uA, 63 uA, 125 uA,	100 nA, 1 uA, 6 uA, 13 uA, 25 uA, 50 uA, 100 uA,	100 nA, 1 uA, 6 uA, 13 uA,

Potentiostat (controlled potential mode)			
	250 uA, 500 uA, 1 mA, 5 mA	200 uA, 1 mA, 5 mA	25 uA, 50 uA, 100 uA, 200 uA, 1 mA, 5 mA
Current accuracy	< 0.5 % for current ranges > 100 nA, < 1% for 100 nA current range	< 1% of the selected current range	< 1% of the selected current range
Measured current resolution	0.006% of selected current range (5.5 pA on 100 nA range)		
Measured potential resolution	56 uV		

FRA / EIS (impedance measurements)	
Frequency range	0.016 Hz to 200 kHz
Ac-amplitude range	1 mV to 0.25 V rms, or 0.708 V p-p

[1] The dynamic range is the range that can be covered during a single scan within the full potential range. For example; a linear scan can start at -1.5 V and end at 1.1 V or vice versa, covering 2.6 V dynamic range.

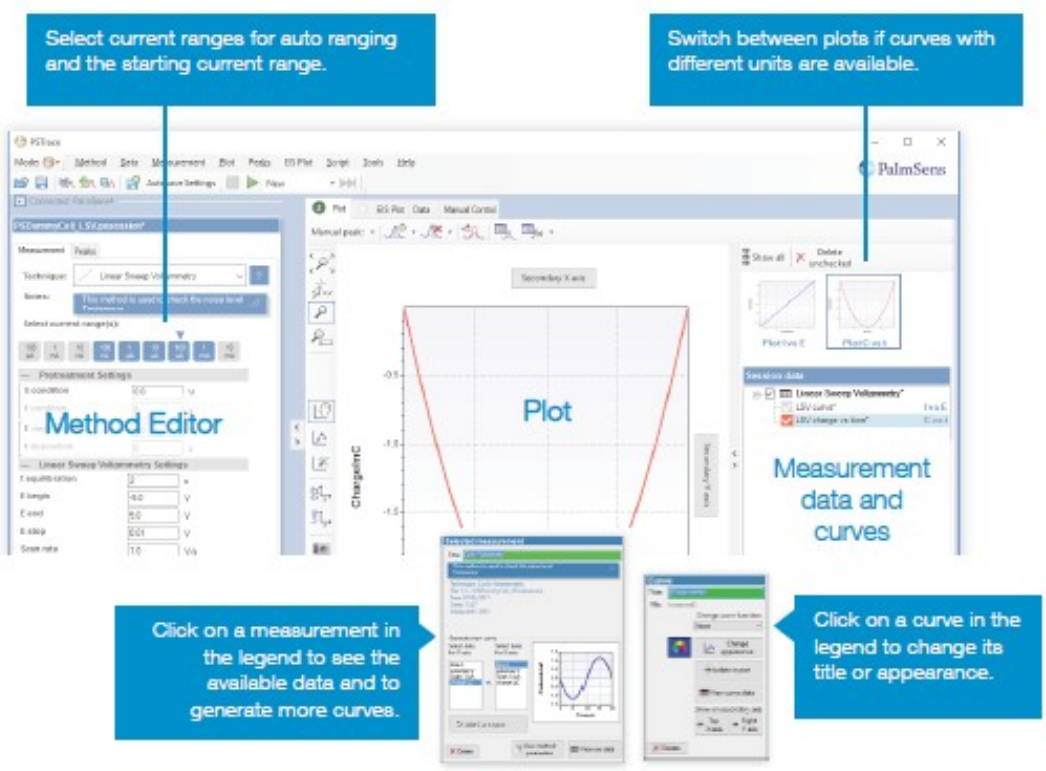
[2] The compliance voltage is the maximum potential between Working and Counter electrode and depends on the selected mode.

Electrometer	
Electrometer amplifier input	> 1 TΩ // 10 pF
Bandwidth	250 kHz

Other	
Power and communication	USB-C
Storage	4000 datapoints on-board
Size	43 x 25 x 11 mm (excl. USB connector)
Weight	10 g
Battery	No
Auxiliary port	No
Sensor connector	SPE (pitch: 2.54 mm)
Operation temperature range	0 °C to +40 °C

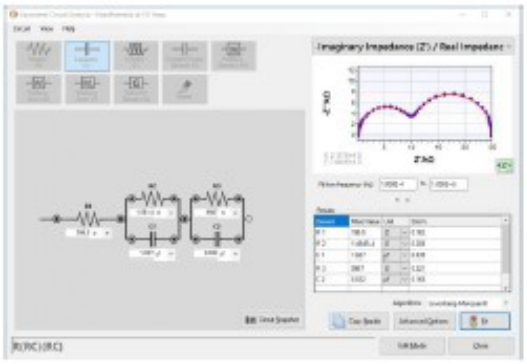
Software

PalmSens4 is shipped with the new PSTrace 5 software.



Other functions in PSTrace 5

- Equivalent Circuit Fitting
- Scripting
- Open your data in Origin and Excel with one click of a button
- Save all available curves, measurement data and methods to a single file
- Browse measurements on PalmSens4's internal storage
- Dynamic feedback on method parameters



New in PSTrace 5:

- Equivalent Circuit Fitting and Simulation for EIS
- Support for PalmSens4; view and copy data on its internal 4GB storage
- New technique: Mixed Mode for combining potentiometry and amperometry, potential sweeps and measuring at open circuit
- Improved UI
- New ".pssession" file format introduced for always saving all available measurements, method information and meta data to a single file.

Precios:

Item	Qty.	Ref.	Description	Unit Value	Total Value
01	01	PS4.F2.10	PalmSens4 + PSTrace software Includes: • PalmSens4 potentiostat/galvanostat (PS4) with impedance analyser , 10V, 1 MHz • PSTrace for Windows • Integrated Bluetooth, 4GB SD-Card • USB cable • Sensor cable and PS Dummy Cell • Rugged rubber sleeve and plastic case • Manual and CD-ROM • Three year warranty	$ 22.690.000	$ 22.690.000
02	1	C-SENSIT-SM	Palmsens Sensit Smart Potentiostat • •  • Includes: • ▪ Sensit Smart potentiostat/impedance analyzer • ▪ PSTrace for Windows • ▪ PStouch for Android (Google Play Store) • ▪ Dummy Cell SPE version • ▪ SPE to screw-terminal adapter • ▪ USB-C Female to USB-A cable • ▪ USB-C Female to Micro USB adapter • ▪ USB-C port protector • ▪ Three-year warranty	$ 4.200.000	$ 4.200.000

Valor total SGC (antes de IVA):	$ 26.890.000
IVA (19%);	$ 5.109.100
Valor Total SGC (IVA Incluido):	$ 31.999.100

NOTAS ADICIONALES	
Garantía	Tres (3) años contra defectos de fabricacion
Términos de pago	Transferencia a cuenta bancaria de Cecoltec SAS a Cuenta Corriente Bancolombia 19103789292 a treinta (30) días fecha factura a treinta (30) días de la instalacion.
Instalación	Libre de costo por parte de Cecoltec SAS para SGC por un (1) día en las instalaciones del cliente. En la instalación se dictará un entrenamiento acerca de métodos electroquímicos disponibles en el software del equipo.
Software	El software es de libre descarga de forma vitalicia por parte del cliente, desde la página web de www.palmsens.com. Es necesario el uso de un PC con sistema operativo Windows (no incluido) para la operacion del equipo. El PC deberá ser suministrado por el cliente. El software puede ser instalado en varios equipos de forma simultánea y es de libre uso sin cargo adicional alguno.

DATOS DEL COTIZANTE:
CECOLTEC SAS
Cuenta Corriente 19103789292

RESPONSABILIDAD
CECOLTEC SAS. no responde por lucro cesante que le puedan ser imputables con ocasión del incumplimiento de sus obligaciones, y el monto de los perjuicios indemnizables van máximo hasta el valor de este contrato.

Cualquier duda que se tenga con relación a la presente oferta puede ser resuelta por nosotros en cualquier momento, por favor no duden en contactarnos.

Atentamente,



Carlos Salazar
Coordinación Comercial
Cecoltec SAS
Nit: 830.035.316-4
e.mail: csalazar@cecoltec.com