

CONDUCTOMETRIC SENSOR

Type: CC1.W* (*)

DESCRIPTION

Substrate material corundum ceramic

WE material Au + Pt alloy, Au, Pt, Ag, carbon* (graphite)

Final dielectric protection layer ceramic, polymeric

Electrode system 1 active part consists of 2 interdigitated structures

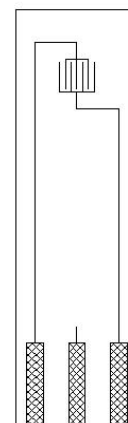
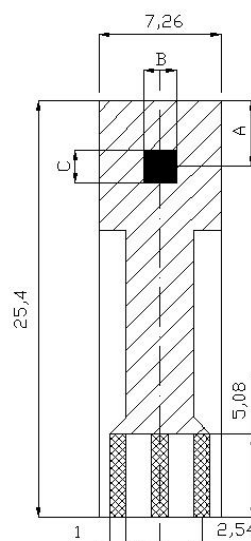
Electrode geometric area
A = 4.00 ± 0.05 mm
B = 2.00 ± 0.05 mm
C = 2.00 ± 0.05 mm

Thickness of lines: 150 μ m

Gap between lines: 200 μ m

Surface modification: blank, (*sensors with carbon WE can be activated on customer request)

Possible applications: Conductivity analysis.



PHYSICAL PARAMETERS

Weight: 0.40 g **Width:** 7.26 mm

Length: 25.40 mm **Thickness:** 0.63 mm

CC sensors require a minimum frequency of 100 kHz to measure conductivity. For these sensors, the customer must perform his own calibration, because the response of the sensor will also depend on the chamber in which the measurement will be performed.

TOPOLOGY

Electrode materials are defined by: **CC1.W* (*)**

The asterisk is replaced by appropriate number or letter.

CC – conductometric sensor on corundum ceramic base

CC1 – sensor group reference number

W – working electrode material

(*) – additional technical specification

S - alloy of gold and platinum

H, Pt1000, T – sensor sensing elements

1 – pure gold

MAC – integrated microreactor

2 – pure platinum

Hydrophobic ring on WE

3 – pure silver

4 – carbon (graphite)

RECOMMENDED ACCESSORIES

Connector for electrochemical sensor

Connector KA1.* <https://bvt.cz/produkt/ka1/>

Connector KA1.C.* <https://bvt.cz/produkt/ka1-c/>

Connector KA1.S.* <https://bvt.cz/produkt/ka1-s/>

EVALUATION UNITS

Recommended potentiostats

PalmSens <https://bvt.cz/kategorie-produktu/potentiostats/palmsens-potentiostats/>

BVT <https://bvt.cz/produkt/gx102-potentiostat/>

eDAQ <https://bvt.cz/kategorie-produktu/potentiostats/edaq-potentiostats/>

MATERIAL RESISTANCE

Sensor is (in final step of production) covered by a polymeric or ceramic dielectric protection layer.

Please note, polymeric dielectric protection layer (and also polymeric binder in graphite paste) has limited resistance to organic solvents.

Ceramic protection layer has limited resistance to strong acids.

Sensors can be dried in an oven up to 150 °C (max. 2 hours) or left to dry freely.

For detailed information see: <https://bvt.cz/wp-content/uploads/2024/01/AC1.-senzory-materials-handling-letak-V.6-aktualizace-2023.pdf>

HANDLING

The active surface of the sensor should not be wiped mechanically or with a cloth with an organic solvent.

The active surfaces of the sensor should not be touched by fingers during handling.

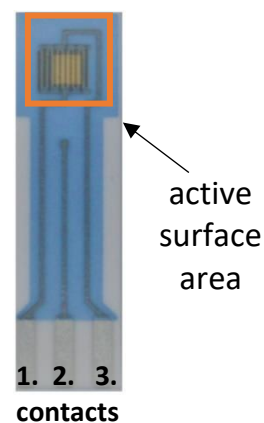
Note:

The conductivity sensor CC1 is not a classic 3-electrode sensor – pay attention to the correct connection.

If you are using classical KA1.* connector with inserted CC1 sensor and PalmSens potentiostat, then:

- Black banana plug from KA1.* (corresponds to the 1st supply contact of CC1 sensor from the left) is clamped by black and blue crocodile clips (together) from PalmSens potentiostat.
- Red banana plug is not connected (because 2nd supply contact of CC1 sensor from the left is “blind”).
- Blue banana plug from KA1.* (corresponds to the 3rd supply contact of the CC1 sensor from the left) is clamped by red crocodile clip from PalmSens potentiostat.

CC1 active part

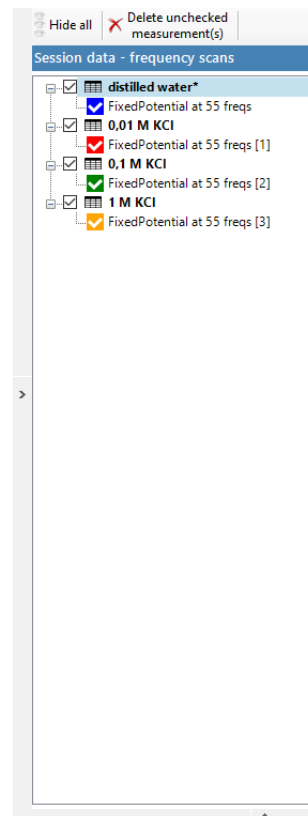
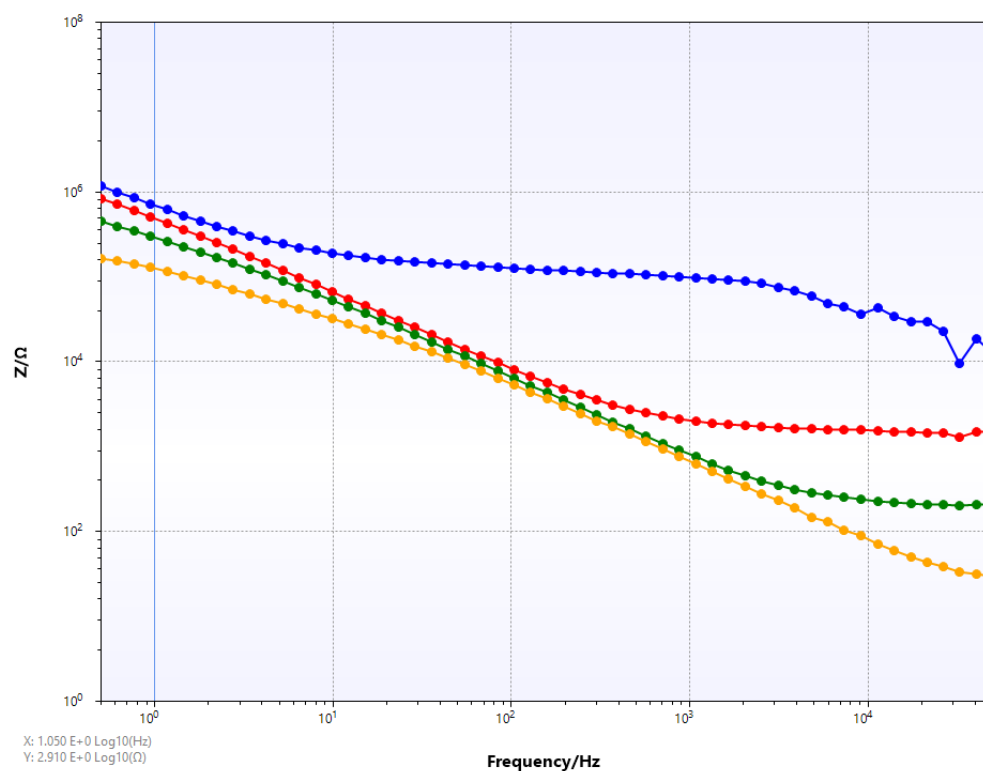


STORAGE

Sensors should be stored in a closed box with silica gel away from light.

EXAMPLE OF MEASUREMENT

Impedance spectroscopy measurement with CC1.W2 sensor in KCl solutions



Measurement specification

Impedance spectroscopy

Impedance Spectroscopy Settings		
t equilibration	0	s
Scan type	Fixed	
E dc	0.0	V
E ac	0.25	V
Frequency type	Scan	
n frequencies	55 = 10.8 / dec.	Edit
Max. frequency	50000.0	Hz
Min. frequency	0.5	Hz

Used equipment

Potentiostat PalmSens, KA1.* connector, TC stand with TC6 electrochemical glass cell

Sensor CC1.W2

Used chemicals

Distilled water, KCl solutions in concentrations: 0.01 M, 0.1 M and 1 M

RELATED LITERATURE

Patents

- CZ-PV 2001-3227

ORDERING INFORMATION

The order is specified by whole sensor description formula.

Minimum order quantity – **20** sensors (= 1 box).

All order quantities are to be in multiples of 20 e.g. 20, 40, 60, etc.

Example of order

20 pcs – CC1.W1

DELIVERY TIME

Delivery time for standard CC1 sensors is a maximum 4 weeks from receipt of order.

Delivery time for non-standard CC1 sensors depend on final technical specification of order.