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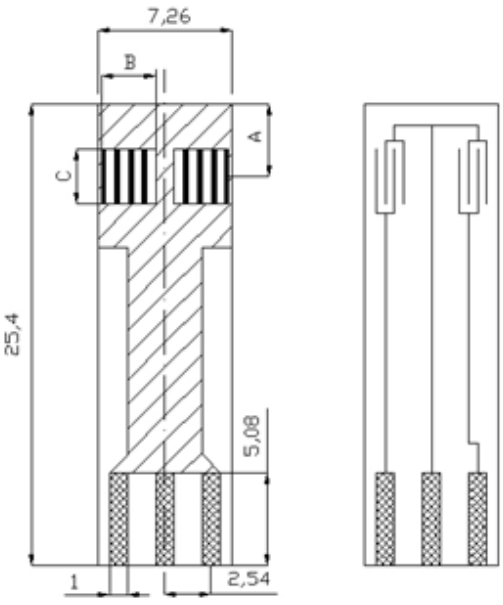
CONDUCTOMETRIC SENSOR

Type: CC2.W* (*)

DESCRIPTION

Substrate material	corundum ceramic
WE material	Au + Pt alloy, Au, Pt, Ag, carbon* (graphite)
Final dielectric protection layer	ceramic, polymeric
Electrode system	2 active parts consists of 2 interdigitated structures
Electrode geometric area	**A** = 4.00 ± 0.05 mm **B** = 3.00 ± 0.05 mm **C** = 3.00 ± 0.05 mm
Thickness of lines:	50 µm
Gap between lines:	50 µm
Surface modification:	blank, (*sensors with carbon WE can be activated on customer request)
Possible applications:	Conductivity analysis. One interdigitated structure can me modified by customer and second one could serve as reference.



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.

PHYSICAL PARAMETERS

Weight:	0.40	g	**Width:**	7.26	mm
Length:	25.40	mm	**Thickness:**	0.63	mm

TOPOLOGY

Electrode materials are defined by: **CC2.W* (*)**
The aterisk is replaced by appropriate number or letter.

CC – conductometric sensor on corundum ceramic base

CC2 – 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)	

RECCOMENDED ACCESORIES

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

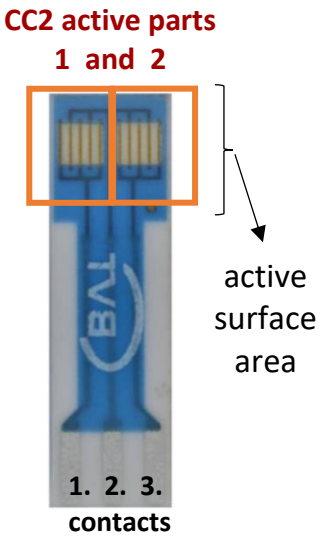
Sensor is (in final step of production) covered by a polymeric or ceramic dielectric protection layer.
Please note, polymeric dielectric protection layer (and also polymeric binder in graphite paste) has limited resistance to organic solvents.
Ceramic protection layer has limited resistance to strong 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 CC2 is not a classic 3-electrode sensor, it consists of 2 active parts (**part 1** corresponds to 1. and 2. contacts; **part 2** corresponds to 2. and 3. contacts – pay attention to the correct connection.

If you are using classical KA1.* connector with inserted CC2 sensor and PalmSens potentiostat, and you want to measure with active part 1, then:

- Black banana plug from KA1.*(corresponds to the 1st supply contact of CC2 sensor from the left) is clamped by black and blue crocodile clips (together) from PalmSens potentiostat.
- Red banana plug from KA1.* (corresponds to the 2nd supply contact of CC2 sensor from the left) is clamped by red crocodile clip from PalmSens potentiostat.
- Blue banana plug from KA1.* (corresponds to the 3rd supply contact of the CC2 sensor from the left) is for now not connected.

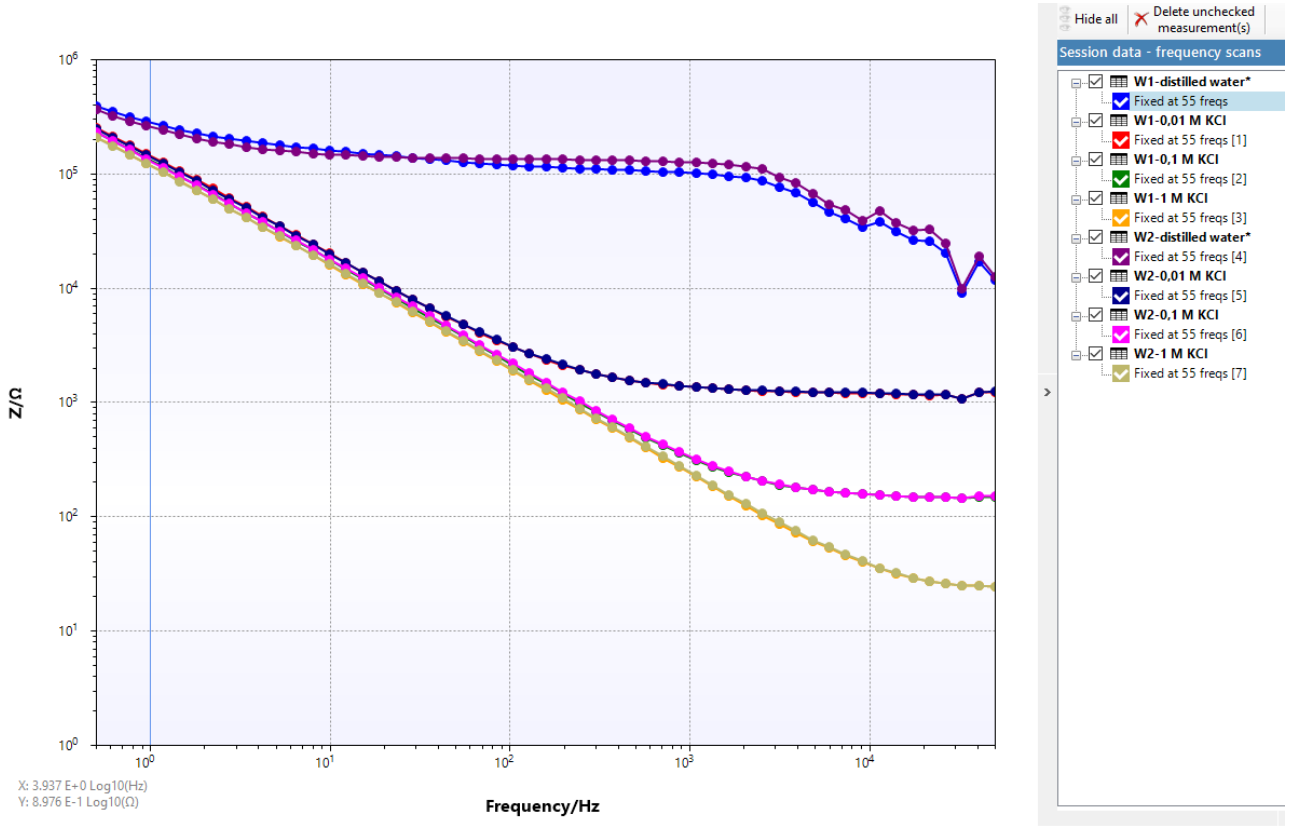
For measuring with sensor active part 2, use sensor contacts 2. and 3.

STORAGE

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

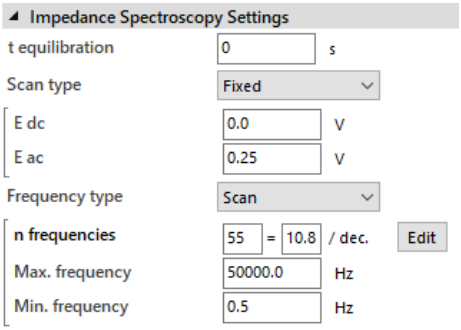
EXAMPLE OF MEASUREMENT

Impedance spectroscopy measurement with CC2.W2 sensor in KCl solutions



Measurement specification

Impedance spectroscopy



Used equipment

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

Sensor CC2.W2

Used chemicals

Distilled water, KCl 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 – CC2.W1

DELIVERY TIME

Delivery time for standard CC2 sensors is a maximum 4 weeks from receipt of order.
Delivery time for non-standard CC2 sensors depend on final technical specification of order.