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Princeton Applied Research

QCM922A

Quartz Crystal Microbalance

The QCM922A is the successor of the market-leading QCM922. The new QCM922A platform adds many key features which provide researchers the capability to measure a small mass change as resonance frequency as well as viscoelastic change as resonance resistance simultaneously. The QCM922A's extended bandwidth allows for segment leading sensitivity, 30MHz, as we as high-speed data acquisition, up to 100 data points per second.

Application Examples

- Measurement of biopolymer interactions, such as protein
- Real-time monitoring of the formation of high molecular and decomposition
- Evaluation of a lithium ion secondary battery with EQCM
- Gas analysis, such as humidity and smell substance
- Quantitative evaluation of the detergency in surfactant
- Film thickness measurement in the plating
- Analysis of structural change by the measurement of the frequency characteristics of the admittance

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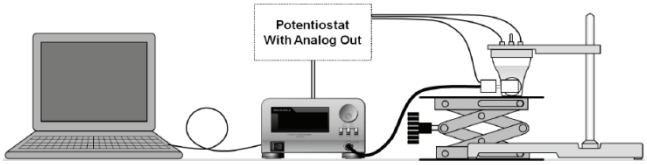
Example of QCM922A System Configuration

EQCM System



QCM-922A, PC, Potentiostat/Galvanostat, BNC cable, Stand, Lab jack

Specification

- QCM922A-020: Main unit

Item	Description
Measuring Item	Simultaneously resonance frequency & resistance or admittance frequency characteristics
Resonance frequency	Resolution: 0.01 Hz Range: 5 MHz to 30 MHz
Resonance resistance	Resolution: 0.01 Ω Range: 1 Ω to 10 kΩ
Admittance frequency characteristics	Frequency range: 4 MHz to 30 MHz
ΔF analog output	Fullscale: ± 10 V(14bit) Range: ± 100 Hz to ± 500 kHz
ΔR analog output	Fullscale: ± 10 V(14bit) Range: ± 10 Ω to ± 10 kΩ
Analog input	2ch, Fullscale: ± 3 V/ 6 V/ 12 V(14bit)
Gate time	10 ms/ 20 ms/ 100 ms/ 1 s/ 10 s
Display	20 characters 4 lines OLED
Interface	USB 2.0
Input power source	AC 100 to 240 V, 50/60 Hz
Power consumption	Max. 25 VA
Dimensions (WxDxH)[mm]	162 x 160 x 95 *
Weight	About 1.3 kg
Operation environmental temperature	5 ºC to 40 ºC (non-condensing)
Compliant standards	CE marking (EMC, low-voltage directive)

QCM922A-020 contains main unit and QCM922A-100

- 9MHz AT-Cut Quartz Crystal Resonator QA-A9M-series

Item	Description
Electrode materials	Au, Pt, Al, C, Cu, ITO, Ni, SiO2, SUS304, SUS316 300nm of electrode material is sputtered onto a Ti film groundwork
Electrode area	5mmφ diameter = 19.6mm^2 Area

- 30MHz AT-Cut Quartz Crystal Resonator QA-A30M-series

Item	Description
Electrode materials	100nm of Au, etc is vapor deposited onto 10nm Ti film groundwork
Electrode area	5mmφ diameter = 19.6mm^2 Area

Specifications subject to change

- QCM922A-100: QA-CL Adapter Cable

Item	Description
Material	Case:PVDF
Connection cable	Connector: LEMO plug(Male) Cable: Coaxial multi cable:about 1.0 m
Working(W) terminal	Connected to the working electrode of Potentiostat/Galvanostat internally connected through a low pass filter and a measurement electrode surface of the quartz resonator
Dimensions (WxDxH)[mm]	24 x 40 x 15 *
Weight	About 130 g(including cable)
Operation environmental temperature	5 ºC to 40 ºC (non-condensing)

- Dip Cell QA-CL3
- Well Cell QA-CL4
- Flow Cell QA-CL6

Item	Description	
Materials	QA-CL3 QA-CL4 QA-CL6	Main Body: PTFE, PVDF O-ring: FKM stop
Dimensions (WxDxH)[mm]	QA-CL3	25.5 x 20 x 12 *
	QA-CL4	25.5 x 20 x 22 *
	QA-CL6	28.0 x 20 x 22 *
Capacity	QA-CL4	Max. 750 µL
	QA-CL6	90µL
Usage	QA-CL3	Solution or air
	QA-CL4	Cell is filled with solution or connected with RG100
	QA-CL6	Cell is flowed with solution by the pump

*without a projection part

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