

Advanced  
Multichannel  
QCMD system

X4





# X4

## Features

- High sensitivity & low limits of detection.
- Fast acquisition rate.
- Low sample volumes.
- Modular design enabling classical and High-Frequency QCMD as well as LOVE-SAW sensor measurements.
- Comfortable handling and robust measurements with quick-lock measurement cells.
- Instrument control and data acquisition via Ethernet.
- Integrated potentiostat control for simultaneous QCMD and electrochemistry applications.
- Optional fluidics module(s) with integrated software control.
- Basic data analysis package and export functions for third-party software analysis.
- Sleek, space-saving and lightweight design.

## General operation specifications

Number of cell units (channels)	4
Type of sensors	QCM, AWS HFF-QCM, AWS Love-SAW
Measurement modes	Tracking mode (single overtone and multiple overtones) <sup>1</sup> High Resolution mode (single overtone and multiple overtones) <sup>2</sup>
Number of overtones	Up to 7 (fundamental + 6 overtones)
Operation frequency range	4 MHz – 160 MHz
Max. Frequency resolution <sup>3</sup>	0.1 Hz
Frequency accuracy <sup>3</sup>	± 0.5 Hz
Temperature control range <sup>4</sup>	15 °C – 45 °C
Temperature stability	± 0.05 °C
Maximum time resolution <sup>5</sup>	250 sps
Normal mass sensitivity in air <sup>6</sup>	8 pg/cm <sup>2</sup>
Normal dissipation sensitivity in air <sup>6</sup>	1.71x10 <sup>-10</sup>
Normal mass sensitivity in liquid <sup>6</sup>	0.6 ng/cm <sup>2</sup>
Normal dissipation sensitivity in liquid <sup>6</sup>	3.5x10 <sup>-8</sup>
Dimensions, (H x W x D)	150 mm x 400 mm x 300 mm
Weight	< 10 kg

<sup>1</sup> Tracking mode provides the full impedance spectrum of the sensor around resonance frequency.

<sup>2</sup> Patented Fast & High-Resolution single frequency point measurement.

<sup>3</sup> Signal generator.

<sup>4</sup> At room temperature 24°C ± 1°C.

<sup>5</sup> High-Resolution mode at single frequency.

<sup>6</sup> For QCM 5 MHz, measured in Tracking Mode on 7 overtones, with no averaging.

Specifications are subject to change without notice.

### Advanced Wave Sensors

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