AWS X1 Single Channel

**Features**

X1 is a single channel, advanced acoustic sensing system that offers:

- High sensitivity & low limits of detection.
- Fast acquisition rate.
- Modular design enabling classical and High-Frequency QCMD and LOVE-SAW sensor measurements, and remote cell placement.
- 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 with integrated software control.
- Basic data analysis package and export functions for third-party software analysis.
- Space-saving and light-weight design.
Equipment configurations

X1 is a modular system that allows flexible solutions, adaptable for various budgets and applications.

Figure 1 - Modules of the X1 system. BCU: Base Control Unit; CS: Cell Station; Cell; TCU: Temperature Control Unit; FCU: Flow Control Unit.

Several configurations are possible:

- The **minimum configuration** consists of Base Control Unit (BCU), cell station (CS) and cell.
- **Advanced options** include integrated temperature control (TCU) and/or a fluidics module (FCU).

The Cell Station can be detached for remote placement (e.g., in an oven, a glovebox, a climate chamber) using an optional cable kit.
### Technical Specifications

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<th>General operation</th>
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<td><strong>Number of cell units (channels)</strong></td>
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<td><strong>Type of sensors</strong></td>
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| **Measurement modes**                                  | Tracking mode (single overtone and multiple overtones)\(^1\)  
High Resolution mode (single overtone and multiple overtones)\(^2\) |
| **Number of overtones**                                | Up to 7 (fundamental + 6 overtones) |
| **Operation frequency range**                          | 4 MHz – 160 MHz |
| **Max. Frequency resolution**                          | 0.1 Hz |
| **Frequency accuracy**                                 | ± 0.5 Hz |
| **Temperature control range**                          | 15 °C – 45 °C |
| **Temperature stability**                              | ± 0.05 °C |
| **Maximum time resolution**                            | 250 samples per second |
| **Normal mass sensitivity in air**\(^6\)               | 8 pg/cm\(^2\) |
| **Normal dissipation sensitivity in air**\(^6\)        | 1.71x10\(^{-10}\) |
| **Normal mass sensitivity in liquid**\(^6\)           | 0.6 ng/cm\(^2\) |
| **Normal dissipation sensitivity in liquid**\(^6\)     | 3.5x10\(^{-8}\) |
| **Dimensions, (H x W x D)**                            | - Stacked system (BCU+TCU+CS): 150 mm x 220 mm x 260 mm  
- Elements:  
  BCU: 55 mm x 220 mm x 260 mm  
  TCU: 60 mm x 220 mm x 260 mm  
  CS: 42.5 mm x 72.5 mm x 155 mm  
  FCU: 200 mm x 70 mm x 260 mm |
| **Weight**                                              | BCU: 3.00 Kg  
TCU: 3.50 Kg  
CS: 0.75 Kg  
FCU: 3.00 Kg |

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1. Tracking mode provides the full impedance spectrum of the sensor around resonance frequency.
2. Patented Fast & High-Resolution single frequency point measurement.
4. At room temperature 24°C ± 1°C.
5. High-Resolution mode at single frequency.
6. For QCM 5 MHz, measured in Tracking Mode on 7 overtones, with no averaging.

*Specifications are subject to change without notice.*
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