

FAQ 02-01 What do I need to make up a complete QCM system?

A typical QCM system consists of the following components:

1. One monitor or controller - for example: SQM-160, SQC-222, etc
2. One or more sensors - for example: 932-000, etc
3. One feedthrough for each sensor - for example: 930-000 or 930-002, etc
4. One sensor kit for each sensor - for example: 934-003

The sensor kit is Sigma's way of simplifying the ordering process. Each sensor kit contains a standard external oscillator, a 10-pack of crystals, and all the cables you need to complete the system.

Of course, not all systems are simple or standard, so many of these components are available in different configurations. The diagram and information below describes each of the components in more detail.

Basic QCM System Configuration and Components:

Sensor: Holds the crystal in a position where it will be exposed to the material being deposited.

Crystal: Determines oscillator frequency which changes as the crystal becomes coated.

Sensor Shutter: Air-actuated cover exposes or shields the crystal from the material being deposited.

In-Vacuum Cable: Coaxial cable connects the sensor to the feedthrough.

Feedthrough: Carries electrical signals, cooling water, and/or air through the vacuum chamber wall.

6 inch BNC Cable: Short (150mm) coaxial BNC cable connects feedthrough to oscillator.

Oscillator: The electronics that operate the crystal.

Sensor Input Cable: Coaxial BNC cable connects the oscillator to the input of the Monitor/Controller. Can be up to 100ft (30m).

Monitor/Controller: The electronics and software that operates the QCM system. A monitor *measures* deposition rate and thickness. A controller also provides an output signal to *control* source power supply and deposition rate.

