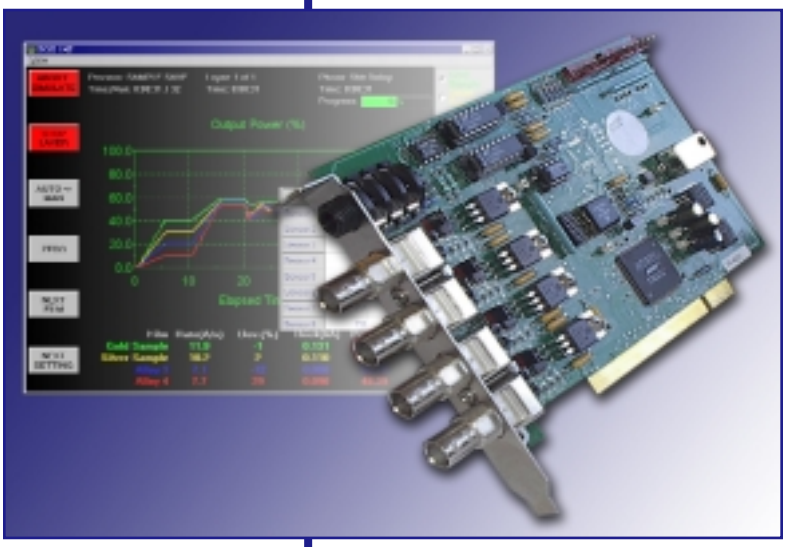


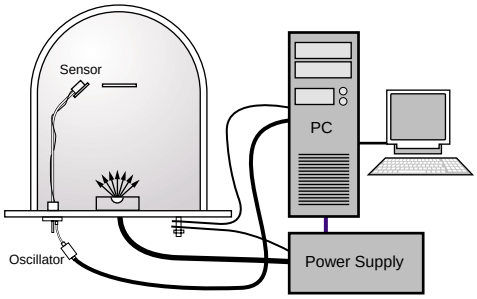
- Deposition controller on a PCI card
- Low cost
- No rack or panel space required
- Windows-based software
- Source code included for system integration
- LabView and Visual Basic programs included
- Use multiple cards for more sensors or outputs
- Codeposit up to four materials

SQM-242

Thin Film Deposition Controller Card

The SQM-242 is a thin film deposition controller on a standard PCI expansion card. Each SQM-242 monitors from one to four quartz crystal sensor inputs, and provides two control voltage outputs, to turn your PC into a fully functioned deposition controller.

A typical single-sensor deposition system is shown in figure 1 below. The SQM-242 Card is installed in a computer, a quartz crystal sensor is connected to the input, and the output connected to the power supply control voltage input. The card's internal PID loop compares actual deposition rate against the desired rate, and adjusts the output signal to the process power supply to correct for any difference. For manual process control, the SQM-242 can simply monitor deposition rate and thickness.



Codeposition is readily accomplished with the SQM-242 by assigning one or more sensor(s) to different source materials. Deposition rate for each material is then independently controlled by its own PID control loop. Each SQM-242 Card can provide control for one or two materials.

The basic SQM-242 Card includes software that is easily modified to communicate with digital I/O cards from a variety of PC card manufacturers. If needed, optional software and a PLC can provide more complete digital I/O capabilities.

The SQM-242 Card is the ideal choice for thin film system OEMs, to incorporate a thin film deposition controller into the system. For those who prefer a panel-operated controller, Sigma Instruments offers a broad selection of self-contained deposition controllers to choose from. The SQM-242 Card is the "heart" of the SID-142 Multi-Channel Deposition Controller, which takes advantage of all the functionality of the SQM-242 Card in a rack mount instrument, ready to use right out of the box.

Sigma instruments

LabView screen (above)

Visual Basic main screen (right)

Specifications

Inputs	Four
Type	Active Oscillator
Connectors	BNC
Frequency	1 to 10 MHz
Sample period	0.1 to 2 sec
Thickness resolution	0.2 Å at 0.25 sec 0.025 Å at 2 sec
Thickness accuracy	0.5% + 1 count

Outputs	Two
Connector	1/4” stereo phone jack (mating plug included)
Signal	0 to ±10Vdc
Impedance	1 KΩ
Resolution	15 bits

Computer Requirements	
CPU	90MHz Pentium or better
Expansion card slot	PCI
Operating system	Windows 98 or higher, NT, ME, 2000, or xP

Software

The standard software included with the SQM-242 Card provides basic setup and deposition control for up to two cards. Source code, as well as LabView and Visual Basic programs are included. Windows DLL and function call documentation allow easy access by virtually any programming language, such as C/C++. ActiveX DLL/EXE interface is also provided.

Options

SQS-142 software	Provides support for multiple cards, codeposition, pre and post conditioning, digital I/O, graphing, and data logging. (A demo version of this software is provided on the CDROM included with the SQM-242 card.)
PLC 900-004-XX	Used in conjunction with the SQS-142 software, the PLC connects to a serial port on the computer and provides digital inputs and relay outputs to control shutters, pocket rotators, thermal controllers, etc. The external PLC provides flexible wiring, easy expansion, and unlimited I/O programming capabilities.

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Want to Know More?

We've only touched on the possibilities. Contact Sigma Instruments with your application. We're ready to help.

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