



SQM 160

Multi-Film Rate/Thickness Monitor

MULTI-CHANNEL QUARTZ CRYSTAL MONITOR

The SQM160 uses proven INFICON quartz crystal sensor technology to measure rate and thickness in thin film deposition processes. Two sensor inputs are standard and four additional sensor inputs are optional. Two recorder outputs provide analog rate and thickness signals.

Sensor inputs can be assigned to different materials, averaged for accurate deposition control in large systems, or configured for a dual sensor. The rate sampling mode allows a shuttered sensor to extend sensor life in high rate processes. Rate displays of 0.1Å/s or 0.01Å/s are user selectable. In addition, Frequency or Mass displays can be selected. Four relay outputs allow the SQM160 to control source or sensor shutters, signal time and thickness setpoints, and signal crystal failure. Digital inputs allow external signals to start/stop and zero readings.

The SQM160 comes with an RS-232 port and Windows® software that allows instrument setup from your computer. The software can be used to set and store all parameters, operate the instrument, and save process data in an Excel® file format. USB or Ethernet options add to the communications flexibility.

EASY TO USE

To start rate and thickness measurements, press Zero to null the last thickness reading, then Shutter to open the source or sensor shutter. The large, bright LEDs simultaneously show thickness and rate readings that are visible from across the room. When the desired thickness is reached, or time has elapsed, the shutter closes and the appropriate front panel annunciators light. Press the Xtal Life button at any time to view the remaining crystal life.

FEATURES AT A GLANCE

- Two measurement channels standard, an additional four optional
- Analog outputs for rate/thickness recording
- High accuracy option: 0.03Hz at 10 readings/sec
- RS-232 standard, USB or Ethernet optional

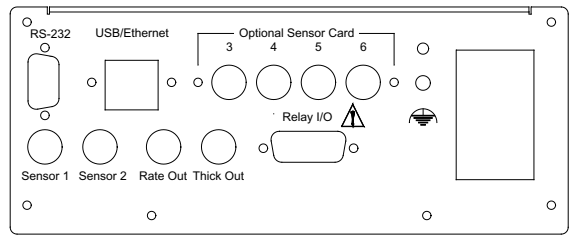
Two menu control instrument setup for the 99 stored films. To access the menus, press Program. Turn the setting knob to select/edit parameters. The main display shows menu prompts, and values are shown in the auxiliary (Time) display.

HIGH ACCURACY, LOW COST

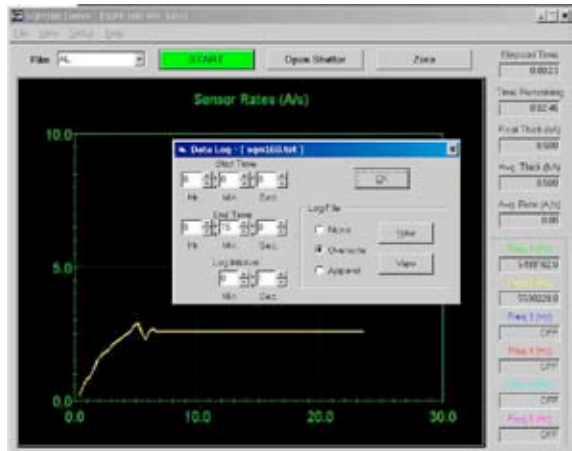
Standard frequency resolution is 0.12Hz at four readings per second. The high accuracy option increases resolution to 0.03Hz at 10 readings per second. Temperature stability is 2ppm over the entire operating range. This combination of high accuracy and high stability are unmatched in an instrument at this price!

SPECIFICATIONS

QCM Sensor Inputs	Standard: 2; optional: 4
Frequency Range	1-10 MHz
Frequency Resolution	Standard: ± 0.12 Hz at 4 readings/sec Optional: ± 0.03 Hz at 10 readings/sec
Frequency Stability	± 2 ppm total, over 0° to 50°C
Selectable Measurement Period	0.10 to 2 sec (in .05 sec increments)
Measurement Filter	1 to 20 readings
Stored Films	99
Analog Outputs	Two 0 to 10 VDC, rate & thickness
Digital Inputs/Outputs	Two inputs, four relay outputs
Digital Interface	Standard: RS-232 Optional: USB or Ethernet
Power	100-120/200-240 VAC, 50/60 Hz, 20 W
CE Compliance	Class 1 equipment, 73/72/EEC LVD, 89/336/EEC ECD
Housing/Mounting	1/2-rack cabinet, 3-1/2" high, 89 x 213 x 197mm (3-1/2" x 8-1/2" x 7-3/4")
Weight	2.7 Kg (6 lbs)
Windows Software (included)	Provides remote setup and operation, datalogging functions - see sample screenshot at right.



SQM160 back panel

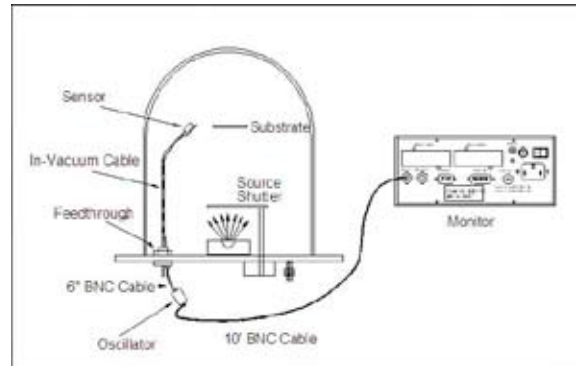


Enhanced software provides a visual display of process data for easy process analysis and documentation. Backup of the SQM160 setup data allows for process consistency.

ORDERING INFORMATION

Base Controller				
Standard Resolution	S			
High Resolution	H			
Number of Channels				
Standard	2			
Optional	6			
Interface				
Standard RS-232	R			
Optional USB	U			
Optional Ethernet	E			

Typical SQM160 System



A typical QCM system consists of the SQM160 monitor (choose your configuration at left) and at least one sensor and feedthrough for each sensor.

ACCESSORIES

782-900-008	19" Rack Mount for one SQM160
782-900-014	19" Rack Mount for two SQM160
782-502-062	4-Sensor Option Card (converts a 2-channel SQM160 to the 6-channel configuration)
782-900-042	High Resolution Option (converts a standard resolution SQM160 to high resolution - this option must be factory installed)
782-900-040	USB Option Card
782-900-041	Ethernet Option Card

