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**Technical Specification of Thin Film Deposition Controller, Monitor  
and Sensor assembly**

**1. Specification for Thin film deposition controller (01 number)**

Thin film deposition controller with preferred front panel display for runtime process visualization

Sensor type: 6MHz AT cut crystal with 0.001 angstrom measurement resolution

Operating Frequency range: 4-7MHz

Data collection rate: approximately 100 ms.

Minimum 6 DAC outputs and 4-6 additional optional DAC for source control, rate or thickness monitoring

Communication: ethernet or USB for data logging – LabView based programme for data-logging

Controller: multiple (preferably modular type) I/O relay or TTL module with integrated DAC, preferably with BNC connector or similar.

230V-50Hz input power

System should be standard rack mountable with needed hardware.

2 numbers of Crystal interface unit including oscillator and associated sensor and power cables.

**2. Specification for Thin film deposition monitor (01 number)**

In-situ thickness monitor

Number of channels: 2 with co-deposition monitoring capability

Communication: ethernet or USB with LabView based programme for data-logging

Data collection rate: approximately 100 ms.

Sensor: 6MHz AT cut Quartz

230V-50Hz input power

Crystal interface unit including oscillator and associated sensor cables

### **3. Specification for Sensor Assembly (03 number)**

Sensor type: 6 MHz AT cut Quartz crystals with polished Au pads (14mm)

Sensor assembly orientation should be parallel to the water line (water cooled)

CF40 vacuum flange with welded feedthrough

Flange to sensor distance: will be provided before procurement and engineering drawing will be shared

In-vacuum cable: 5ft.

### **4. Specification for quartz crystals QCM sensors**

Number of items: 100 numbers

Sensor Crystals: 6 MHz, polished Gold 100 Crystals, 14 mm diameter

**Warranty:- 1 Years from date of installation.**

The vendor should have a proven record in thin film measuring technologies with successful and running assembly in India for reference.

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