

technical bulletin

EpiSensor™ Level Indication System for Semiconductor Precursors

An accurate, robust level sensor system capable of indicating liquid metalorganic precursor weight present in a standard source container under static and active bubbler conditions.

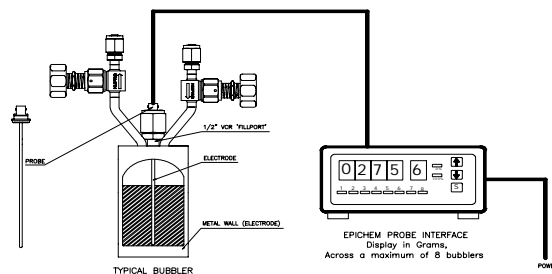
INTRODUCTION

The specially designed probe fits neatly into the filler port of any bubbler (ampoule) and when in place becomes an integral part of the bubbler itself. Up to eight separate probes can be connected to the EpiSensor™ Level Display Unit and individual channels measured and displayed. Each channel may be individually calibrated on bubbler connection and then indicates the weight of material (in grams) present throughout source usage, with an accuracy of $\pm 1\%$. Where more than one channel is operational a simple cycle program moves through the channels to provide fill level data for each source in a sequential manner.

The unit provides a visual display, a data stream via *either* an RS232 output, and also a 4..20mA output scaled to match 0...full scale in grams.

BASIC MEASURING PRINCIPLE

The level probe acts as one plate of a capacitor with the bubbler wall as the other plate. As the level of precursor in the bubbler falls a change in capacitance takes place due to a change in the amount of dielectric between the 'plates'. This change can be measured and directly correlated to the weight of precursor remaining. The system readings are continuous between the full and empty calibrated values.



PRACTICAL INFORMATION

The level probe is supplied with the full source container ready for attachment to the monitoring unit. A simple calibration of the unit to set the fill value in g once the bubbler has been installed on the kit is all that is required. No change to transportation requirements, currently employed to return cylinders, is necessary.

The probe itself is totally inert to the precursors and causes no product degradation. The seal assembly is based on VCR technology making it ultra high integrity.

The EpiSensor™ displays accurate remaining weight to ensure a production growth run can be completed without interruption by source depletion. Precise level indication allows improved precursor usage for each bubbler and easier inventory management control.