



Megatech Limited

Enabling Technology

www.megatechlimited.co.uk

Reactaflo PDS-1

Dual Channel Reactive Sputtering Process Controller



System Description

The Reactaflo system is installed as follows: The Piezo Valve and Mass Flow Sensor are connected into the reactive gas line, and the Mass Flow Controller into the Argon (or inert gas) line. The sight tube is installed inside the vacuum system, at a position where an adequate optical signal can be obtained from the plasma. The special construction of this tube almost eliminates loss of signal because of material depositing on the fibre optics. The vacuum feedthrough is bolted into a convenient hole and the other end of the fibre optic cable is mounted on the monochromator. All elements are connected by screened cable to the Reactaflo controller. The controller has four segments. The main segment provides for selection (and display) of optical emission set point and Photomultiplier voltage (i.e. sensitivity). Adjustments are provided to accommodate differing system time constraints. A green / red LED indicates control status. The second segment displays the actual flow rate of reactive gas and the third segment selects and displays the flow rate for the main sputtering gas (usually Argon). Diagnostic LED's make up the fourth segment.

Applications

Reactaflo is adaptable to all reactive sputtering processes whether single or multi-cathode, R & D or industrial-scale.

Materials

Detailed experience has been obtained with the following materials, but the possibilities are practically endless: ITO, TiN, SnO₂, Al₂O₃, SiO₂, TiO₂, etc.

Deposition Rates

Typical deposition rates achieved using Reactaflo are as follows:

- * ITO - 4800 Å/min
- * TiO₂ - 900 Å/min
- * SiO₂ - 1800 Å/min

Complete System

The Reactaflo PDS-1 package contains all system elements required for a complete installation. The hardware consists of:

- * PDS-1: Dual Channel Reactaflo Controller (240V or 110V)
- * MON-200: EP200 Monochromator
- * FO-UV8: Fibre Optic Cable with Vacuum Feedthrough
- * OC-206: Plasma Sighting Tube
- * MFC-280: Mass Flow Controller
- * FS-360: Flow Sensor
- * PZO-010: Piezo Electric Control Valve
- * CAB-005: Interconnecting and mains cable set