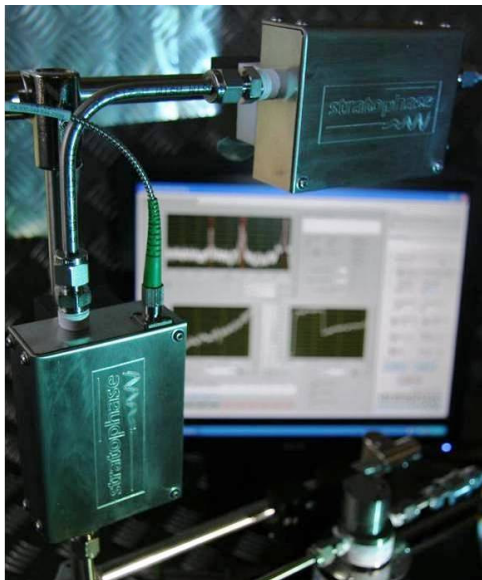




Measurements of Flammable Liquids in Explosive Environments

The SpectroSens refractive index monitoring technology is ideal for process monitoring in explosive environments. An all optical system, it is an intrinsically safe real-time distributed measurement technique for monitoring (fingerprinting) production liquids including flammable liquids (e.g. solvents, petrochemicals, etc.).



The SpectroSens measurement system is based on a ruggedized optical fibre distribution system. A central control system monitors up to 16 sensors, with each sensor in the configuration of an insertion probe or in-pipeline unit. The only connection between the sensor units and control system is a ruggedized optical fibre transmitting a low power optical signal (incapable of forming an ignition source) to the sensor head which can be located 100s of meters from the control unit. Each sensor head operates passively, responding only in the optical domain with no power consumed at the point of measurement, resulting in a technique ideal for applications where sources of ignition must be avoided.

Below is a trace from 2 sensors monitoring the refractive index of a feed pipeline transitioning between water, acetone and ethanol. In this implementation the sensor heads were located 30m away for the control box, demonstrating the options for operation where sources of ignition must be kept away from the production area (for example a control room).

