

ENHANCED SAFETY BY BEACON 3000 NIR PROCESS ANALYSERS

Occupational safety is of high priority in process industries, which invest many resources to improve occupational safety. About 10 -15 % of fatal accidents that occur in these industries are related to maintenance operations. About 67% of the maintenance incidents refer to repair of unexpected failure or to planned maintenance, while 25% is assigned to cleaning operations and 9% to examination and lubrication.

If processes are not properly controlled, potential risks exist for accidental release of toxic, reactive, flammable or explosive liquids or gases, or a combination of these, at any time in processes in chemical plants or in refineries.

Today, on-line process analyzers form an integral part in controlling the quality and safety of processes in a chemical production plant or a refinery. Local and international legislations require full protection of the analyzers to prevent any fire or explosion hazards in the hazardous atmosphere where they are placed in. Mostly, these analyzers are placed either in shelters or directly in hazardous unsafe areas, which require special housings to prevent the occurrence of harmful situations.

Frequent preventive maintenance actions of analyzers, and immediate repair in case of failures, form the basics to maintain highest accuracy and reliability of the measurements these analyzers perform. In many cases, maintenance requires opening of the enclosure, accompanied by disassembling and reassembling of the analyzers. In these cases, technicians may be exposed to dangerous, flammable, toxic or explosion hazardous substances, during maintenance operations of process analyzers either producing or applying chemical substances.

To enhance the safety of analyzer technicians, it is required to minimize the entrance in hazardous areas for keeping the analyzers operating properly. Conventional process analyzers contain in general various moving parts, where periodical preventive maintenance is inevitable. However replacing conventional analyzers by the Beacon 3000 NIR process analyzer contributes to enhance the safety of the instrument, the operators, the technician and the entire plant.

The Beacon 3000 consists of a unique concept of a central analyzer, which is placed in a safe area, such as in an equipment room or a control room, being connected by up to 3000-meter long optical fibers to



up to eight different field units (measuring probes), connected to process streams in hazardous areas. The field probes are free of moving parts and of electricity, and therefore no potential hazard for explosion, and almost no maintenance actions are required. The direct benefit is the performance of less maintenance in hazardous areas, less disassembling and less exposure to toxic and hazardous chemicals.

This definitely increases safety of plant technicians, by refraining from frequent employment in hazardous areas.