

DENSITY MEASUREMENT FOR MINING APPLICATIONS

Ronan Measurements Division supplies the process control industry with leading-edge Radiometric Measurement Systems that provide non-contact measurement solutions for the harshest environments.

RONAN'S DENSITY RADIOMETRIC MEASUREMENT SYSTEM

Application

In harsh industries such as mining, accurately measuring density of liquids, slurries, and solids contained in a pipe or vessel can be difficult. Ronan's Density Radiometric Measurement System provides reliable results for even the most challenging measurement applications including:

- Cyclone Monitoring
- Thickener Overflow and Underflow
- Autoclave Slurry Feed
- Concentrator Thickener
- Flotation Thickener Feed
- Tailings

Problem

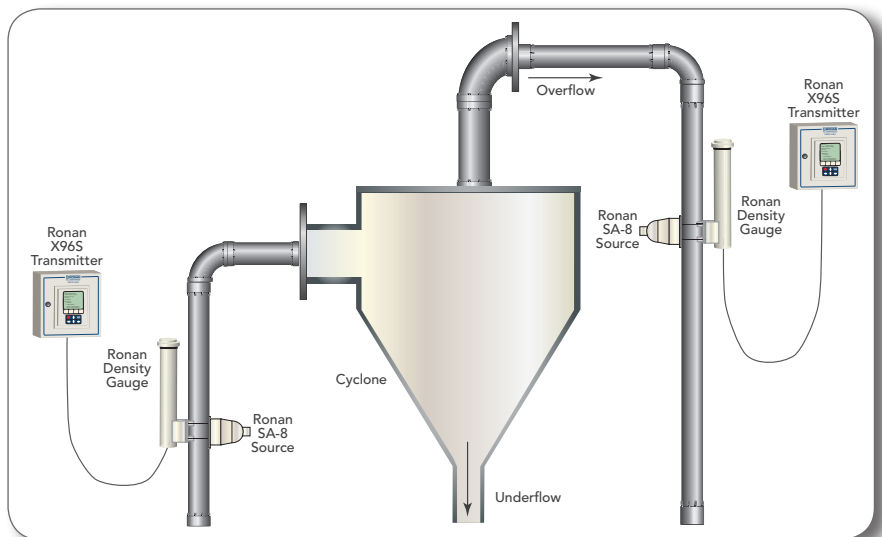
When process material to be measured is corrosive, explosive, abrasive or highly viscous, under high pressure or in a flow that is violent or constantly changing, or when material is contained in a vessel with an internal obstruction, traditional measurement techniques can provide unreliable results, and are often impossible to implement.

Solution

Radiometric Measurement provides a safe and efficient non-contact method to measure liquids and solids in harsh process environments. A Radiometric Measurement System consists of a gamma Source and Source Holder, Detector and Transmitter. The gamma Source is mounted externally to the vessel and emits energy through the vessel walls, directed towards the detector, also mounted externally, on the opposite side of the vessel. The gamma energy reaches the detector in an inversely proportional relationship to the level of material in the vessel. The detector measures the amount of energy and sends a signal to the microprocessor, which correlates the signal to a measurement and displays the information in user-specified units. Because the entire system mounts externally to the vessel or pipe, it can be easily installed and maintained while the process is running without downtime, vessel modifications, risk of accidental release, or the need for specialty construction materials.

Summary

When traditional measurement techniques won't work, Radiometric Measurement provides a safe and viable solution. Ronan Measurements Division offers the widest variety of Source Holders and Detectors on the market, including Source and Source Holders to meet every need, Detectors configurable to any shape or length, and an easy-to-use Transmitter.



Cyclone Monitoring Density Application using Radiometric System

DENSITY RADIOMETRIC MEASUREMENT SYSTEM

Ronan SA-8 Source Holder

The SA-8 is a rugged, general purpose source holder suitable for a wide range of applications requiring an externally mounted source. The SA-8 provides shielding which meets all international standards for radiation limits, and accommodates source activity up to 5 Curies (185 GBq) CS-137 or 18 mCi (0.67 GBq) Co-60.

Features:

- Ductile Iron cast with epoxy paint; also available in Stainless Steel and PVC-coated ductile iron
- Lead free option available
- Fireproof design available
- Manual rotary shutter standard; shutter position indicator contact output, air or electric actuated shutter with position indicator contact output optional.



RLL Low-Level Source

Ronan is the only manufacturer to offer the revolutionary Radiation Low-Level (RLL) Source Holder. The RLL uses up to 100 times less gamma energy than comparable gauges, and is the only source holder recognized by the NRC to be so safe that it does not require the stringent documentation, training or handling procedures of other systems. The gauge can be relocated by your personnel, without a licensed person present. The System, using the RLL Source, can accurately measure pipes up to 16" with no reduction in accuracy.



Scintillation Detector

Ronan pioneered the use of solid crystal scintillation detectors more than 20 years ago, and now has an installed base in the thousands across a wide variety of applications worldwide. Ronan employs two types of crystals, Scintillating Plastic Crystals for standard applications and Sodium Iodide scintillating crystals for ultra low-level fields. Scintillation Detectors provide efficient detection, enabling the use of lower-level sources. Ion Chamber detectors are also available for extremely high vibration applications.



X96S Series Radiometric Transmitters

The X96S series of Radiometric Transmitters offer calibration and configuration in a simplified format. They provide flexibility and inherent stability of digital processing to process measurements. The diversity of the design enables the customer to choose from a self-contained unit mounted remotely from the measurement, a blind transmitter with various communication options, or any combination in between. The X96S Transmitters are modular in design, enabling the measurement computer to be tailored to the application requirements. Push-button programming is obtained through the LCD Graphic Display. All programming prompts are in English, with help screens available almost eliminating the need for a manual. Various board configurations accept multiple digital or analog inputs from ion chambers or scintillation detectors, as well as analog or discrete inputs and outputs. Serial communication is available in multiple formats including the HART® format.

