

Density and Point Level Measurement

Radiometric Sensor for Liquids and Solids Measurement





Contents

Leadership in Radiometric Density	3
plics® – Easy is Better	4
MiniTrac 31 – Measurement of Percent Solids	6
Mounting Accessories and Retrofitting	8
Setup and Adjustment	10
Services for the Complete Product Lifecycle	11

Leadership in Radiometric Density

VEGA is the industry leader in nuclear product development and refinement. The latest in radiometric measurement systems is ProTrac[®], which is the culmination of 60 years of proven application experience and engineering research and development. ProTrac is the answer to the process industries' demands for modern, compact instruments that provide highly accurate measurements, even in the toughest conditions that require radiometric measurement systems.

Why Use Radiometric Measurement?

For the toughest applications, radiometric measurement is the only solution. It is non-contact and is not affected by process pressure, temperature, or corrosive properties. Even in the toughest environment, radiometric measurement is accurate and highly reliable.

Source Output

A source holder and detector are mounted on opposite sides of the process vessel. A cesium-137 or cobalt-60 isotope is used as the source of gamma radiation that is passed as a collimated beam through the process vessel and material toward the detector.

Detector Inference

As the process density rises, it shields the detector from radiation. The more radiation the detector receives, the lower the process density and vice versa. The detector on the opposite side of the tank infers the density based on the radiation received by its Nal crystal.

Radiometric Density Benefits

- Wear- and maintenance-free operation.
- Doesn't require the critical acoustic coupling, as is required by ultrasonic devices.
- Not in contact with the process material.
 Many non-nuclear technologies are in contact with the slurry and experience wear.
- Can be installed and removed from the pipe without expensive process shutdown.
- Measurement is independent of product viscosity, conductivity, and chemical properties.



plics[®] – Easy is Better

Instrument Platform plics®: Process Measurement Made to Order

Commercially available standard solutions for measurement do not leave the user much leeway for truly optimal instrumentation. In contrast, the instrument platform plics[®] provides a variety of configurations, which are chosen based on application requirements. The plics platform allows for the most suitable combination of sensor, electronics, and housing to be created. The result is an instrument that is highly reliable, economical, user friendly, and with short lead times. With sensors that offer reliable measurement using radiometric technologies, and construction based on the plics principle, VEGA continues to lead the way in solving difficult and important application issues.

How We Earn Your Business

The Right Instrument for Every Application

VEGA is committed to supplying instruments that work in all applications, not just those with ideal conditions. All new instruments are tested in extreme heat, dust, chemical, moisture, and cold environments before they are released. VEGA's goal is to enable customers to achieve operational efficiency with every measured process.

24 Hour Support

The VEGA Field Service team is trained to provide telephone, email, or on-site customer service. Whether starting up, configuring, or troubleshooting the system, VEGA Field Service provides necessary steps to ensure the measuring device and its outputs run efficiently. Through service and training, VEGA supports all users throughout the life of the installed solutions.

Performance Guarantee

To demonstrate our commitment to specifying the right instrument for each application, VEGA Americas offers a Performance Guarantee — if our recommended solution does not perform exactly as expected, we'll make it right.







MiniTrac 31 – Measurement of Percent Solids

Ideal Density Measurement: MiniTrac 31

The MiniTrac measures the density, or mass per unit volume, of liquids and slurries contained in pipes or process vessels. The MiniTrac's non-contact, radiometric measurement principle is unaffected by product viscosity or other properties. The density measurement allows the operator to monitor percent solids in a slurry, or track an interface level within the process, making the MiniTrac an ideal detector in many industries. The MiniTrac is suitable for density measurements on pipelines and vessels with a diameter from 2 inches (50 mm) up to more than 36 inches (914 mm).

MiniTrac 31

- Measuring Range: Application-specific
- Ambient Temperature: -40 ... +140°F (-40 ... +60°C)
- Output signal: 4 ... 20 mA/HART,
 Profibus PA, Foundation Fieldbus
- Enclosure Rating: NEMA 4X, IP 66/67
- Standard Approvals: ATEX, CSA, FM, IEC





Slurry Density

To ensure that a process is running at optimum capacity, mining facilities require accurate tracking of percent solids in their slurry pipelines. The MiniTrac 31 reliably monitors the quality of milling/ grinding operations, and the density of the thickener underflow.

- Density meter's non-contact measuring principle results in wear-free operation
- Lightweight detector system reduces mounting requirements

Flue Gas Scrubber

Accurate tracking of the lime slurry pipeline in a fossil fuel power plant's scrubber system is imperative to reduce sulfur dioxide emissions. The MiniTrac 31 tracks the density of the lime slurry in the pipeline to maintain the efficiency of the scrubbing process.

- No moving parts vastly reduces maintenance requirements
- Reliable density measurement is produced, even under extreme process conditions



Technology highlight: ProTrac series

ProTrac offers a host of features, including a modernized interface between the instrument and the user that improves accessibility to the measurement. The unique electronics provide superior measurement stability and improved output response time. The MiniTrac is the smallest, lightest, and most modern radiometric density system available.



Liquor Density

Whether black, green, or white, each liquor in a pulp mill has an optimum density for maximum operating efficiency. Liquor is a caustic material, demanding a reliable non-contact measurement. Radiometric density is the go-to solution for this application. The MiniTrac 31 is the best tool for the job.

- Excellent temperature stability and measurement resolution thanks to auto-gain control
- Onboard display and configuration via PLICSCOM module

Remote Monitoring

Many applications require the mounting of level or density detectors in areas that are difficult to access. A VEGADIS 81 provides remote measured value indication and adjustment of MiniTrac 31 detectors at a distance of up to 82 feet (25 meters) from the mounted detector's location. The cable connection carries communication and power directly from the MiniTrac 31 to the VEGADIS 81.

- VEGADIS 81 remote display requires no additional power
- Remote adjustment and diagnostic procedures occur at ground level or a safely accessed location

Mounting Accessories and Retrofitting

Brackets: PTB1 and PTB2

VEGA's standard pipe mounting brackets provide a flexible and convenient method of installing density detectors and source holders directly on process piping, even while the process runs. The PTB1 is suitable for pipes with a diameter of 2" ... 14", whereas the PTB2 is ideal for pipes with an outside diameter between 16" ... 36". Both brackets are constructed of rugged LCS with polyester powder coating or stainless steel. These durable mounting brackets provide flexible mounting choices for a wide range of source holders and accessories, and VEGA includes support lugs that distribute weight to external supports.

PTB1

- Pipe Size: 2" ... 14"
- Mounting Style: Horizontal or 30° angle mounting
- Hardware Style: Standard or metric thread







PTB2

- Pipe Size: 16" ... 36"
- Mounting Style: Horizontal or vertical mounting, mounting offset on a chord
- Bracket Configuration: Vibration or thermal isolation



Plug-and-Play Upgrades to the MiniTrac 31

VEGA offers brackets to allow simple retrofit of our previous generation of detectors to ProTrac.





The mount brackets available for the MiniTrac 31 come standard with the ability to mount directly in place of most competitive density meters.





Setup and Adjustment



Guided Setup

Configuring the detector properly is perhaps the most important step in commissioning a new device. Technicians must understand the parameter settings and their effect on the instrument's output. VEGA recognizes that this is important to running a profitable operation and to having a safe work environment.

Radiometric measurements infer process conditions, so accuracy is at a premium. VEGA provides guided setup in our DTM adjustment tool, and ProTrac's guided setup wizard assures accurate results for various measurements. Additionally, setup may be accomplished using a local PLICSCOM interface or a remotely HART EDD.

On-screen information makes it easy to understand the purpose of each step. Thanks to the guided setup, users can count on safe and reliable measurement.

Instrument Indication and Adjustment

- PLICSCOM offers local measured value indication and adjustment
- All sensor data may be saved on the PLICSCOM and copied into a new sensor
- Sensors are easily configurable and important adjustments are done quickly with DTMs
- EDD descriptions are available for all plics devices

Services for the Complete Product Lifecycle







Radiation Services

VEGA Americas is able to meet all of your radiation service needs. With service personnel located worldwide and a full production and service facility, VEGA Americas is always ready to provide the following:

- Start up and commissioning
- Service, maintenance, and disposal of source material
- Licensing support for new and experienced users
- Radiation program audit support personnel
- Survey meter calibration services
- Licensed technical analysis on wipe tests
- 24 hour service phone support

The ReSource® Program

The ReSource Program assists throughout the ownership of a source, supporting complete source life cycle management. From new source procurement through ownership transfer at the end of the source's useful life, VEGA Americas provides full assistance.

The ReSource Program is the ideal solution for any customer in need of removing unwanted sources with any of the following requirements:

- Eliminate customer liability associated with stockpiling
- Remove multiple source types from multiple manufacturers
- Contact a single supplier for all radiation system needs
- Reduce the impact of radioactive waste on the environment



VEGA Americas, Inc. 4170 Rosslyn Drive Cincinnati, OH 45209 USA

+1 800 367 5383 Toll Free +1 513 272 0131 Phone +1 513 272 0133 americas@vega.com E-mail www.vega.com

Fax

Web

Looking Forward

