Continuous and Point Level Measurement

Radiometric Sensors for Liquid and Solid Level Measurement

Looking Forward

VEGA

Contents

Leadership in Radiometric Technology

VEGA is the industry leader in radiometric product development and refinement. A culmination of 60 years of application experience and engineering research and development, ProTrac® is the latest in radiometric measurement systems. 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 Technology?

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 Interface

As the process level rises, it shields the detector from the radiation. The more radiation the detector receives, the lower the process level and vice versa. Level is provided in the form of a digital or current output.

ProTrac Series

- Lightweight detectors install in minutes without any special tools

- Powerful setup wizards walk users through all necessary setup steps

- Encapsulated electronics improve the detector's lifespan when subjected to thermal shocks or vibration

- All basic applications can be configured with ProTrac's unique, optional local display and adjustment module

- Each unit includes software required to perform any job: multi-gauge communication, analog inputs, remote displays, and more

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 a highly reliable, economical, user-friendly instrument available on a short lead time. 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.
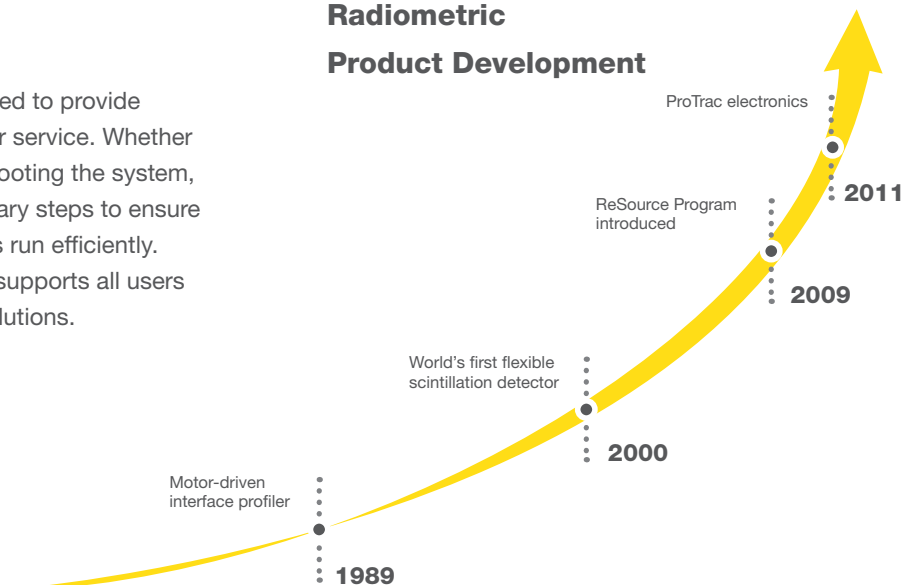
24 Hour Support

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.

Radiometric Product Development

ProTrac electronics

2011

ReSource Program introduced

2009

World's first flexible scintillation detector

2000

Motor-driven interface profiler

1989

Terminals

Removable

Electronics

4 … 20 mA/ HART

Profibus PA

Foundation Fieldbus

Housing

Aluminum double chamber

Stainless steel double chamber

Indicating & Adjustment Module

PLICSCOM
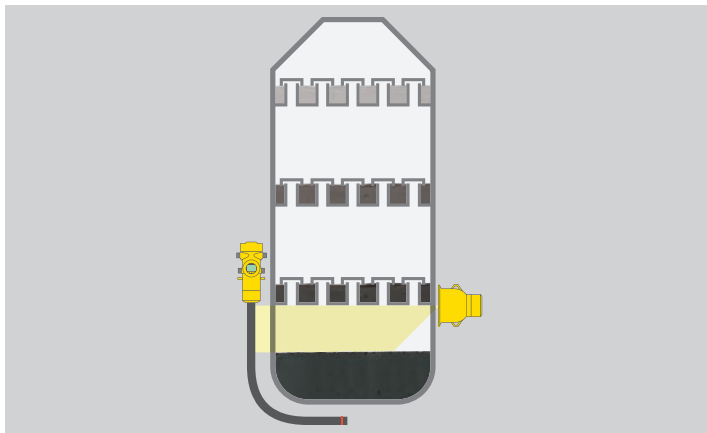
VEGACONNECT

Sensors

Solid scintillator

Flexible plastic scintillator

SIL Safety standards   Ship approvals   **Ex** Explosion protection   **Hyg** Hygienic standards

5

FiberTrac 31 – Continuous Level

Radiometric sensor for continuous level measurement: FiberTrac 31

For continuous level measurement over long spans or on curved vessels, the FiberTrac flexible radiometric detector is an ideal solution. The detector conforms to the contour of the process vessel, eliminating the need for multiple detectors. The FiberTrac is extremely versatile, suitable for an array of applications involving liquids, bulk solids, sludge, and suspensions.

FiberTrac 31

- Measuring range: up to 23 ft (7 m)
- Ambient temperature: -4 … +122°F (-20 … +50°C)
- Standard approvals: ATEX, CSA, FM, IEC
- Output signal: 4 … 20 mA/HART, Relay, Profibus PA, or Foundation Fieldbus
- Enclosure rating: NEMA 4X, IP 66/67
- Housing: cast aluminum or stainless steel
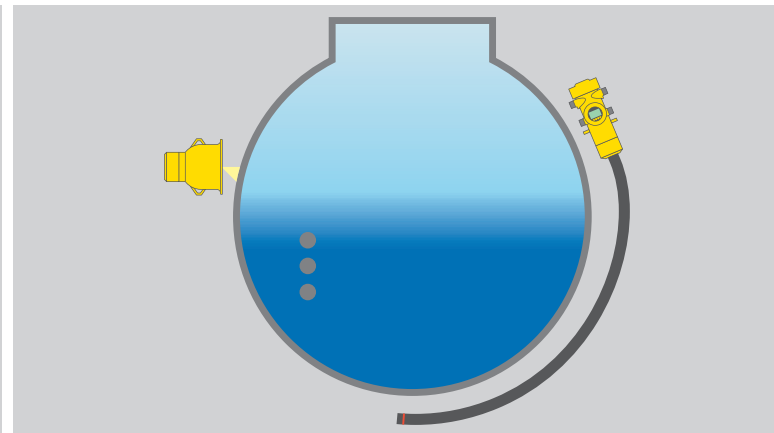- Sensor type: Flexible plastic detector

Curved Vessels

Level measurement in a curved vessel can be difficult. The flexible FiberTrac 31 detector follows the contour of the vessel, allowing a single source holder and detector combination to produce the measurement.

- Single source holder/detector combination minimizes cost
- Flexible detector follows the contour of the vessel for easier installation
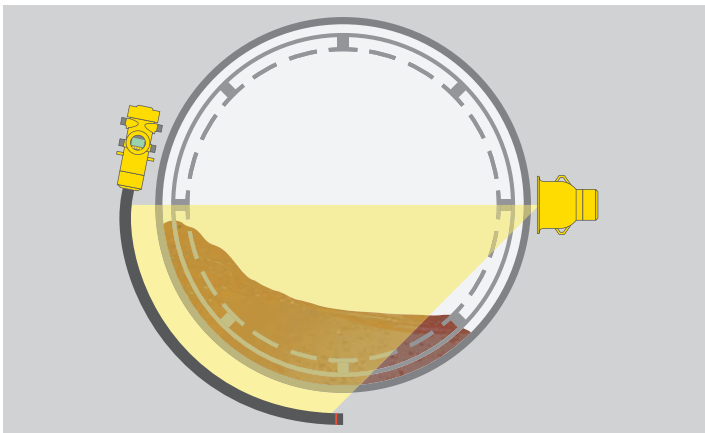
Hydrolyzers

The conversion of urea to ammonia for desulfurization is highly corrosive and takes place in a bullet-shaped vessel, presenting a challenge for accurate level measurement. Non-contact measurement is the best option to avoid high maintenance and replacement costs that come with technologies that contact the corrosive material. A single FiberTrac 31 and source holder system conforms to the contour of the curved vessel and provides an accurate, non-contact level measurement.

- Flexible detector eliminates the need for multiple detectors
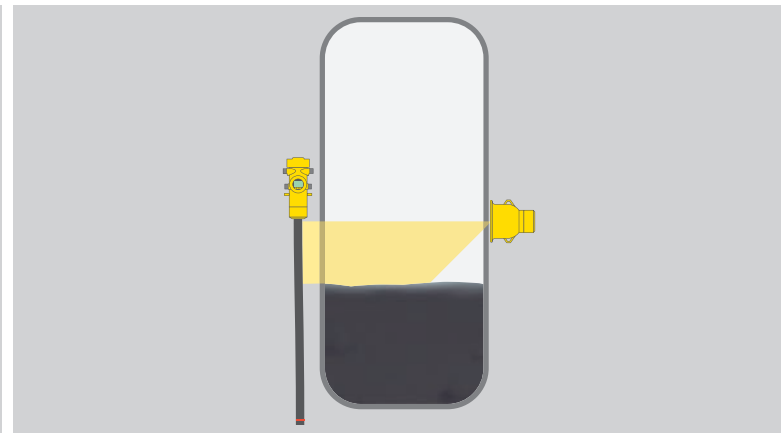- Non-contact measurement is unaffected by corrosive process properties

Plastic Production

The high heat and pressure required in the production of polyethylene or polystyrene plastics create a barrier for many measurement principles. By measuring through the vessel's walls, the FiberTrac 31 detector continuously tracks the process level. An optional VEGADIS 81 remote display can be used to provide an easily accessible way to view outputs and to perform basic adjustments when the detector is difficult to reach.

- External mounting is unaffected by process pressure and temperature
- Optional VEGADIS 81 provides remote adjustment and diagnostics
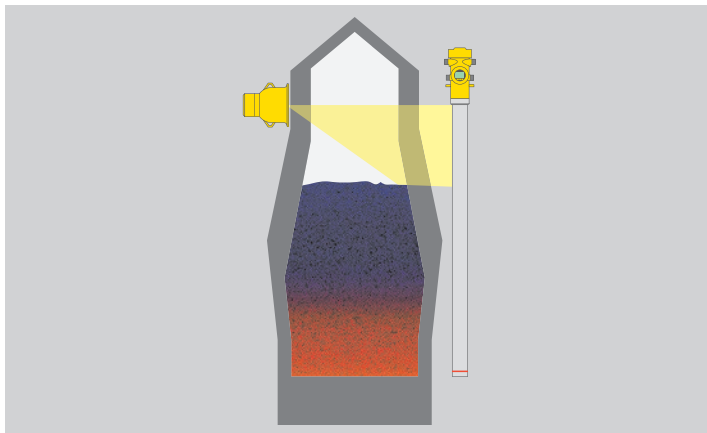
Tall Vessels

The FiberTrac 31 is offered in lengths up to 23 feet (7 meters), allowing for continuous level measurement of longer measuring spans to be accomplished with a single detector. This provides significant cost savings in detectors, as well as in construction and maintenance of platforms on the side of tall vessels.

- Long detector lengths promote cost savings through the use of only one detector for a 23 feet (7 meter) measuring range
- Vessel platform construction and maintenance costs are minimized

SoliTrac 31 – Continuous Level

Radiometric sensor for continuous level measurement: SoliTrac 31

The highly sensitive SoliTrac produces accurate continuous level measurement with minimal source size requirements. Because the system is non-contact, it installs without process downtime or vessel alterations in most cases. Typical applications include retrofits, and where extreme process conditions such as high temperature, pressure, and agitation are present.

SoliTrac 31

- Measuring range: up to 10 ft (3 m)
- Ambient temperature: -40 … +140°F (-40 … +60°C)
- Standard approvals: ATEX, CSA, FM, IEC
- Output signal: 4 … 20 mA/HART, Relay, Profibus PA, or Foundation Fieldbus
- Enclosure rating: NEMA 4X, IP 66/67
- Housing: cast aluminum or stainless steel
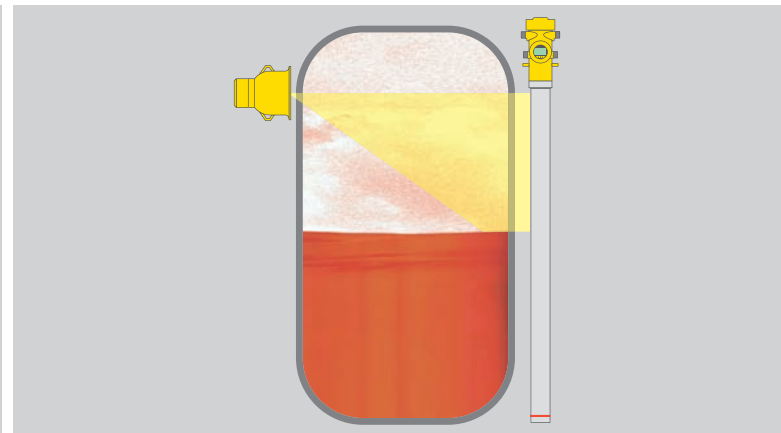- Sensor type: Highly sensitive PVT scintillator

Thick Walled Vessels

Due to extreme conditions such as high temperature and pressure, some processes require vessels to have thick walls or layers of insulation. The SoliTrac 31 and SE83 source holder system provides a continuous level measurement through the vessel walls and insulation. The sensitivity of the system allows for the lowest source activity levels possible to make the measurement.

- Source is protected within fireproof holder
- Highly sensitive system measures through vessel walls and insulation

Retrofit Applications

In applications where existing sources will be re-used, a sensitive scintillation technology may be necessary. The SoliTrac 31 is an ideal solution for these applications. It retrofits older scintillation technologies and ion chambers, while utilizing the existing source installation.

- Utilization of existing sources reduces retrofit costs
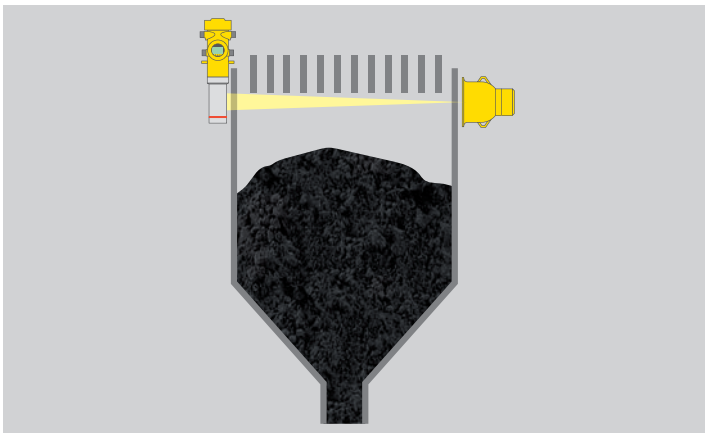- Highly sensitive detector performs well in weaker gamma energy fields

PoinTrac 31 – Point Level

Radiometric sensor for point level measurement: PoinTrac 31

The PoinTrac 31 provides point level detection in applications where contacting technologies fail. External mounting makes the equipment immune to abrasive and corrosive product properties. The system accurately supplies high or low level alarming, as well as plugged chute detection.
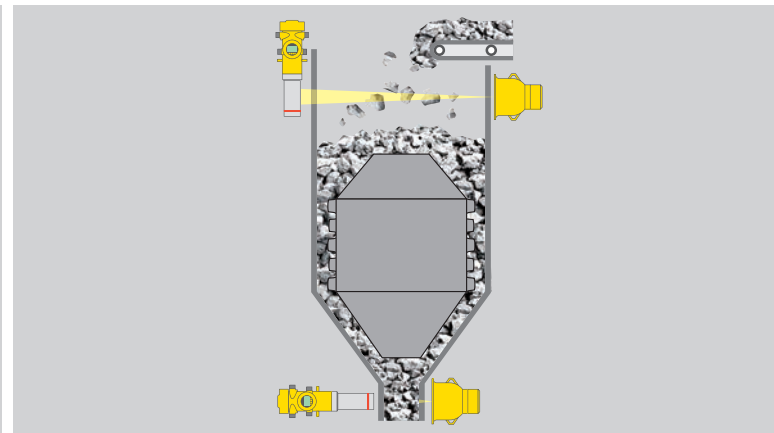
PoinTrac 31

- Ambient temperature: -40 … +140°F (-40 … +60°C)
- Standard approvals: ATEX, CSA, FM, GOST-R
- Output signal: 4 … 20 mA/HART, Relay, Profibus PA, or Foundation Fieldbus
- Enclosure Rating: NEMA 4X, IP 66/67
- Housing: cast aluminum or stainless steel
- Sensor type: Highly sensitive PVT scintillator

Level Indication in Fly Ash Hopper

The PoinTrac 31 point switch with an SE82 source holder is an ideal radiometric high level alarm in a fly ash hopper. The PoinTrac 31 uses high sensitivity scintillation technology, which minimizes the required gamma energy source size. In addition, the sensitivity of the PoinTrac 31 allows for the most affordable retrofit of current Geiger Mueller switches on these applications, when the gamma energy field produced by the existing sources is too weak to activate the GM switch.

- High sensitivity switch, allowing the source size to be minimized
- Retrofits older, less sensitive switches, eliminating the need to change gamma sources

Plugged Chute Detection

A reliable solution for plugged chute detection is a VEGA scintillation-based point level system. Using a radiometric source and a PoinTrac 31 detector, the system mounts external to the vessel and measures through the vessel walls to detect plugging. Programmed to ignore the common material falling through the chute, the PoinTrac 31 signals the operator when the material backs up or causes a blockage.

- External mounting installs without shutting down the process
- Economical solution for nuclear point level

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 remotely via 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
- Bluetooth PLICSCOM allows for wireless configuration of ProTrac instruments via PACTware.

Services for the Complete Product Lifecycle

Radiometric Services

VEGA Americas is able to meet all of your radiometric 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
· Radiometric 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 radiometric system needs
· Reduce the impact of radioactive waste on the environment

ReSource®

Looking Forward **VEGA**