Solutions for extreme process conditions

Radiation-based measurement

Radiometric instrumentation covers a wide range of measurement tasks. Whether level, limit level, density or mass flow: The PROTRAC series delivers reliable measuring results, even under extreme process conditions like high temperatures, aggressive media, thick vessel walls or hard-to-reach measuring points.

Since installation is entirely external and no mechanical or electrical components come into contact with the medium, radiometric systems are virtually maintenance-free. There are no moving parts, no seals and no risk of material fatigue due to chemical or thermal stress. This measuring principle thus guarantees maximum safety and reliability.

Reliable early warning system

All PROTRAC instruments are equipped with sophisticated asset management for self-monitoring and self-diagnosis. They provide standardised status messages for preventive maintenance in accordance with NE 107.

Certified safety

The radiometric level, density and point level sensors are developed according to the stringent requirements of IEC 61508 for SIL and meet the highest standards. They are certified for use in areas subject to explosion hazards.

Flexible retrofitting

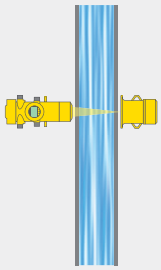
Radiometric systems can be retrofitted to existing production equipment without modifications and, for many applications, without process interruption. The detector and source holder, i.e. radiation shielding container, are mounted on the outside of pipes or tanks.

Areas of application

Radiometric measurement is used whenever other methods reach their limits. Radiometric sensors operate with gamma radiation, which easily penetrates matter. This allows contactless measurement from the outside. The following typical application scenarios illustrate why radiometric sensors are indispensable in many industries – whether for ensuring process continuity, quality or occupational safety.

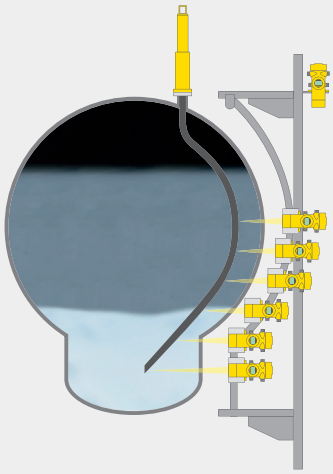
Point level detection

Radiometric level sensors are ideal for use in silos containing highly dust-generating very hot or hazardous materials. They reliably detect when critical levels are reached, e.g. to prevent overfilling.



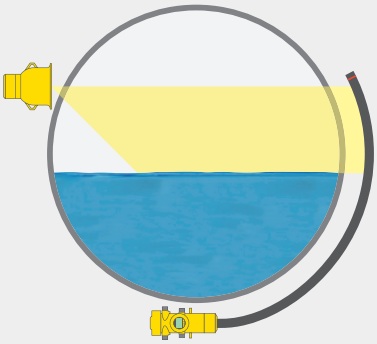
Density measurement

The density of liquids or suspensions in a pipeline is measured for example, to determine the concentration of a substance or identify different liquid phases. In reactors or mixing vessels, density measurement enables targeted process control based on physical parameters.



Density profile measurement

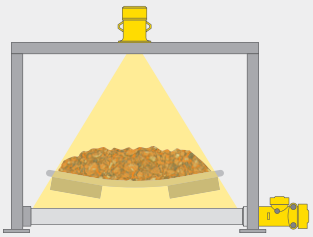
A density profile can be created by installing multiple detectors in a vertical row outside a vessel. This is particularly advantageous with multi-phase media, for example, for detecting the interface between water, emulsion and oil, or measuring the density gradient in settling processes or in separation columns.



Level measurement

In large, pressurised vessels, continuous level measurement with conventional sensors is often not possible.

In such cases, radiometric detectors deliver precise measurement data over the entire range, i.e. height, of the vessel, without disturbing the process.



Mass flow

By using a mounting frame, contactless measurement of mass flow on all types of conveyors is possible. The radiometric measuring system functions regardless of environmental influences, feed-rate and load profile, with a speed input to calculate the mass flow.

Radiation-based measurement for level, limit level, density and mass flow

Continuous measurement of liquids and bulk solids for use in cylindrical containers, reactors, autoclaves, separators, mixing tanks and pipelines as well as on conveyor belts.

	PRO **FIBERTRAC 31/32**	PRO **SOLITRAC 31**	PRO **POINTRAC 31**	PRO **MINITRAC 31**	PRO **WEIGHTRAC 31**
Application	Level and interface measurement of liquids and bulk solids	Level and interface measurement of liquids and bulk solids	Point level detection of liquids and bulk solids	Level, limit level and density measurement of liquids and bulk solids	Mass flow measurement of bulk solids on conveyor belts
Ambient temperature	-40 … +50 °C	-40 … +60 °C	-40 … +60 °C	-40 … +60 °C	-40 … +60 °C
Selectable detector length	305 … 7000 mm	152 … 3000 mm	45, 152, 304 mm	–	–
Electronics	4 … 20 mA/HART, Profibus PA, Foundation Fieldbus				
Approvals	ATEX, UKEX, IECEx, NEPSI, FM, CSA, EAC (GOST), INMETRO, CCOE, TIIS, KOSHA/KTL, SIL2				ATEX, UKEX, IECEx, NEPSI, FM, CSA, EAC (GOST), INMETRO, CCOE, TIIS, KOSHA/KTL

Accessories

PTB3 clamping fixture for wall or pipe mounting of PROTRAC sensors

Water cooling fixture for prevention of detector overheating

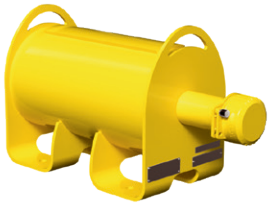
KV 31 clamping fixture for pipe mounting of MINITRAC and source holder

1107822-EN-260615

Source holder

The source holders of the VEGASOURCE 80 series developed by VEGA ensure effective shielding of the deployed isotope and direct the gamma rays precisely to the desired measuring range.

The radioactive sources are hermetically sealed and meet the highest safety requirements in accordance with the German Radiation Protection Ordinance (StrlSchV) and the IAEA Safety Standards.

	VEGASOURCE 81	VEGASOURCE 82	VEGASOURCE 83	VEGASOURCE 84/85/86
				
Exit angle	5°, 30°, 40°, 45°, 60°			5°, 30°, 40° oder 45°
Mounting	Mounting plate 152 x 152 mm	Mounting plate 216 x 216 mm	Mounting plate 315 x 315 mm	Mounting plate 84: 327 x 197 mm 85: 387 x 238 mm 86: 429 x 285 mm
Weight	11 kg	34 kg	82 kg	84: 280 kg, 85: 600 kg, 86: 900 kg

VEGA added value

VEGAsense gives meaning to data

VEGAsense provides intelligent digital functions throughout the entire instrument lifecycle:

- Intuitive and simple adjustment
- Digital test assistants, including documentation
- Comprehensive diagnostic functions for self-monitoring

VEGAcare is a service with added value

VEGAcare offers free services that provide optimal support in daily work:

- Expert advice on applications
- 24/7 service hotline
- Digital customer portal myVEGA
- Video tutorials

We offer comprehensive support and training from start to finish: VEGA engineers design and verify the measuring point with special software. We also provide all necessary approval documents and support you when it comes to exchange, return and proper disposal of the radiation source.

vega.com/radiometrics