

SENseries

High-sensitive Detectors for
Non-contact Process Measurements



NEW SENSseries – highly sensitive performance

SENSseries comprises radiometric detectors for monitoring level, continuous level, density and concentration. Due to the high sensitivity, the detectors provide very reliable measuring results with an unmatched high accuracy – online and in real-time. The SENS detectors are also applied under challenging measuring conditions, where they have been working flawlessly for several years.

The main characteristics of the detectors are

Between high and highest sensitivity

The extremely high sensitivity of the SENS detectors enables an extensive increase of the measuring accuracy; even the response time of critical processes can be reduced.

A very special advantage is the enormous reduction of the source activity. A reduction of up to 80 % is possible, depending on the individual application. Existing sources can be used considerably longer; the effective source life can then be enhanced by several years.

Long time stability

The patented method for automatic drift compensation counteracts influences of temperature and ensures high sensitivity as well as consistently high accuracy over the whole measuring range and the whole system life.

All-rounder in communication

Besides the evaluation via 4 – 20mA current output, the product portfolio also contains the user interfaces Profibus PA, Foundation Fieldbus and HART.

Non-contact – Perfect

The detectors do not come into contact with the measured product, as they are mounted outside the vessel or pipe. They are, therefore, not subjected to any wear. Neither maintenance nor extra-cleaning is required for these detectors.

They provide an easy installation, which can be also realised on existing systems without modification of the plant.

SuperSENS

This characteristic point detector impresses with its unique high sensitivity and measuring accuracy. It is suitable for applications that have not yet been accomplished or can only be solved using very high source activities. The SuperSENS is the optimal solution for particularly thick-walled pipes and vessels, or if exceptionally large diameters have to be irradiated. For radiation protection reasons, the SuperSENS is deemed to be the favoured alternative since lowest source activities can be realised.

Its high sensitivity results from the extremely large scintillation capacity that is substantially larger as conventional detectors. This means a three or fourfold increase in sensitivity. The SuperSENS is optimally protected against natural radiation environment by a special lead casing.



For the measurement of:

- **Density and Concentration**
- **Continuous Level**
- **Level**

Technical support – goes without saying

Our project engineers and application specialists will determine which detector is best suited for your measuring task. They will select the optimal solution, considering your requirements and wishes, and assist you in all issues concerning radiation protection – individually and cost-effectively!



CrystaSENS

This point detector contains a high-quality scintillation crystal made of sodium iodide, which is exceptionally sensitive. Due to its compact volume, it is particularly suitable for systems with limited space requirements.

For the measurement of:

- Density and Concentration
- Continuous Level
- Level

UniSENS

This rod detector boasts a sensitive detector length of 0.5 up to 2 meters. In order to cover larger measuring ranges, multiple UniSENS detectors can be cascaded.

Interfaces can be determined reliably in conjunction with a rod source.

For the measurement of:

- Level
- Interfaces

TowerSENS

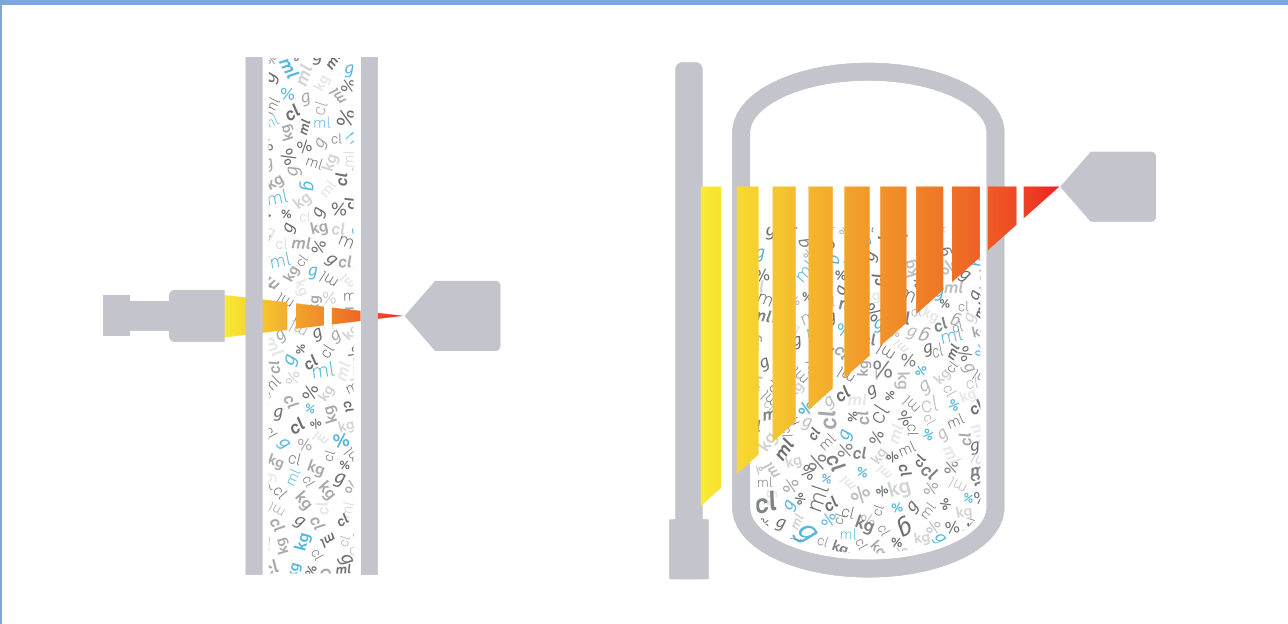
This rod detector is the most economical solution for extremely long measuring ranges. Employing only one electronic unit, the TowerSENS can manage measuring ranges of up to 8 meters. It incorporates the sensitivity of the SENSseries and is unrivalled in price and performance.

For the measurement of:

- Level

Extreme measuring conditions

Our measurement systems work in the most demanding and hostile of process conditions. Extreme temperatures and pressures, corrosive and abrasive atmospheres – these are conditions in which our systems operate. In many cases, our equipment is the only solution available as compared to intrusive, probe type contacting technology!



Principle of measurement

Gamma radiation is attenuated as it passes through matter. This attenuation is measured by a scintillation detector. The attenuation of radiation is only affected by a change in level or by a change in density of the measured product.

The measuring results are irrespective of temperature, pressure, dust, colour or chemical properties of the measured product. Consequently, radiometric measuring gauges manifest a very high level of operational safety and are maintenance-free, even under difficult operating and ambient conditions.

Sensitive detectors

The incident radiation creates scintillation light flashes in the inner part of the detector – the so-called “scintillator”. The number of flashes depends on the sensitivity of the detector. A photomultiplier, combined with the electronics connected downstream, converts these flashes into electrical pulses, and based on this, the exact level/density is determined.



BERTHOLD TECHNOLOGIES GmbH & Co. KG · Calmbacher Str. 22 · 75323 Bad Wildbad, Germany
Telephone +49 7081 177-0 · Fax +49 7081 177-100 · industry@berthold.com · www.berthold.com