

Designed for special demands: Yours.

Simple, safe and even smarter – the new generation of 80 GHz radar sensors.



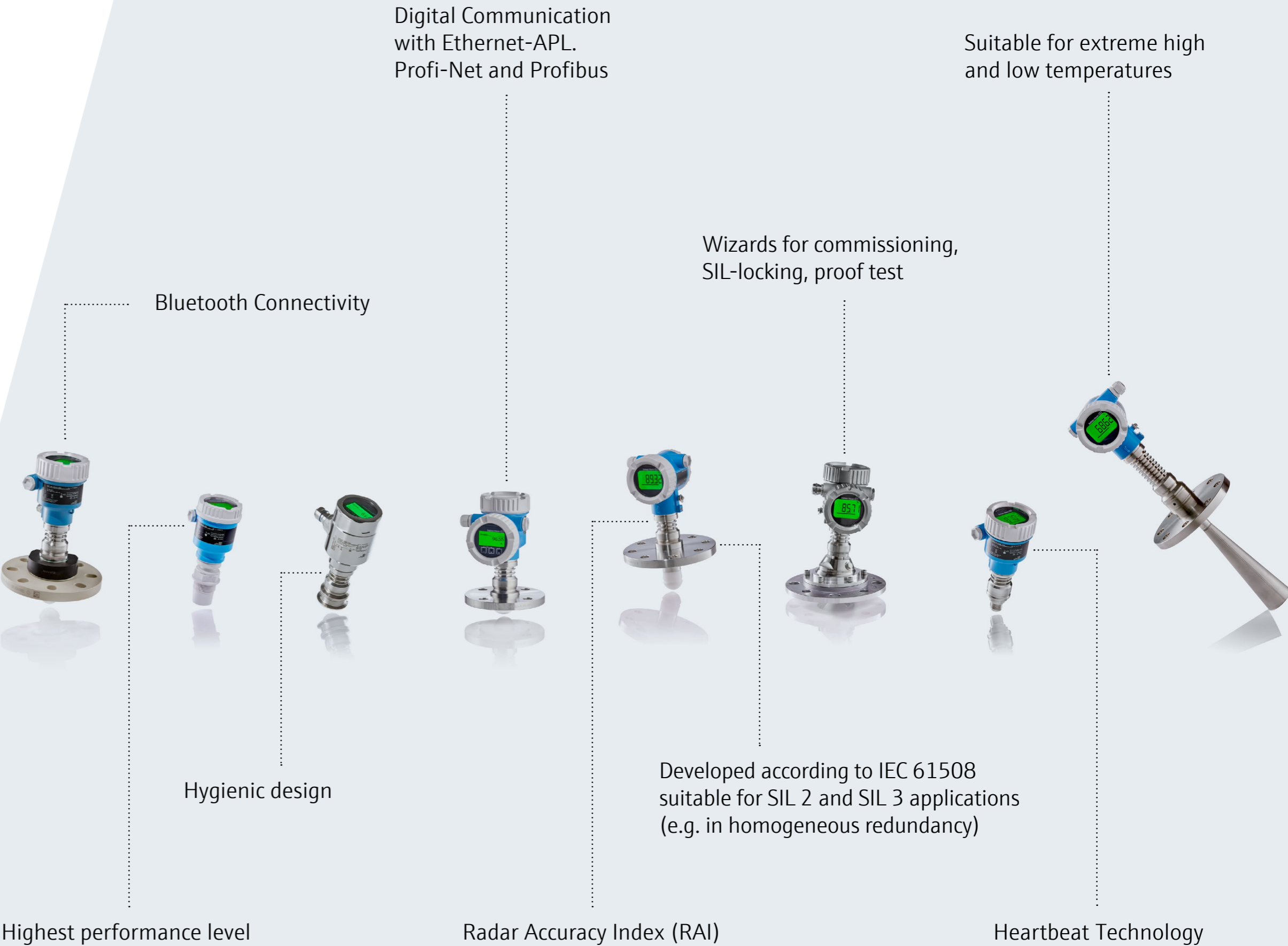
At a glance: Micropilot

Designed for special demands: Yours.

Our new generation of 80 GHz free-space radar sensors meets your individual requirements and makes your processes simpler, safer and more productive:

Broad radar portfolio for universal application, intuitive operability and a user interface that is standardized across product lines.

Developed using our many years of application and industry know-how, our new generation of 80 GHz radar sensors offers solutions for virtually all radar applications in the primaries, chemical, oil and gas industries as well as in the life sciences and food sectors. Our range includes products optimized for entry into the process industry and a high-temperature version.



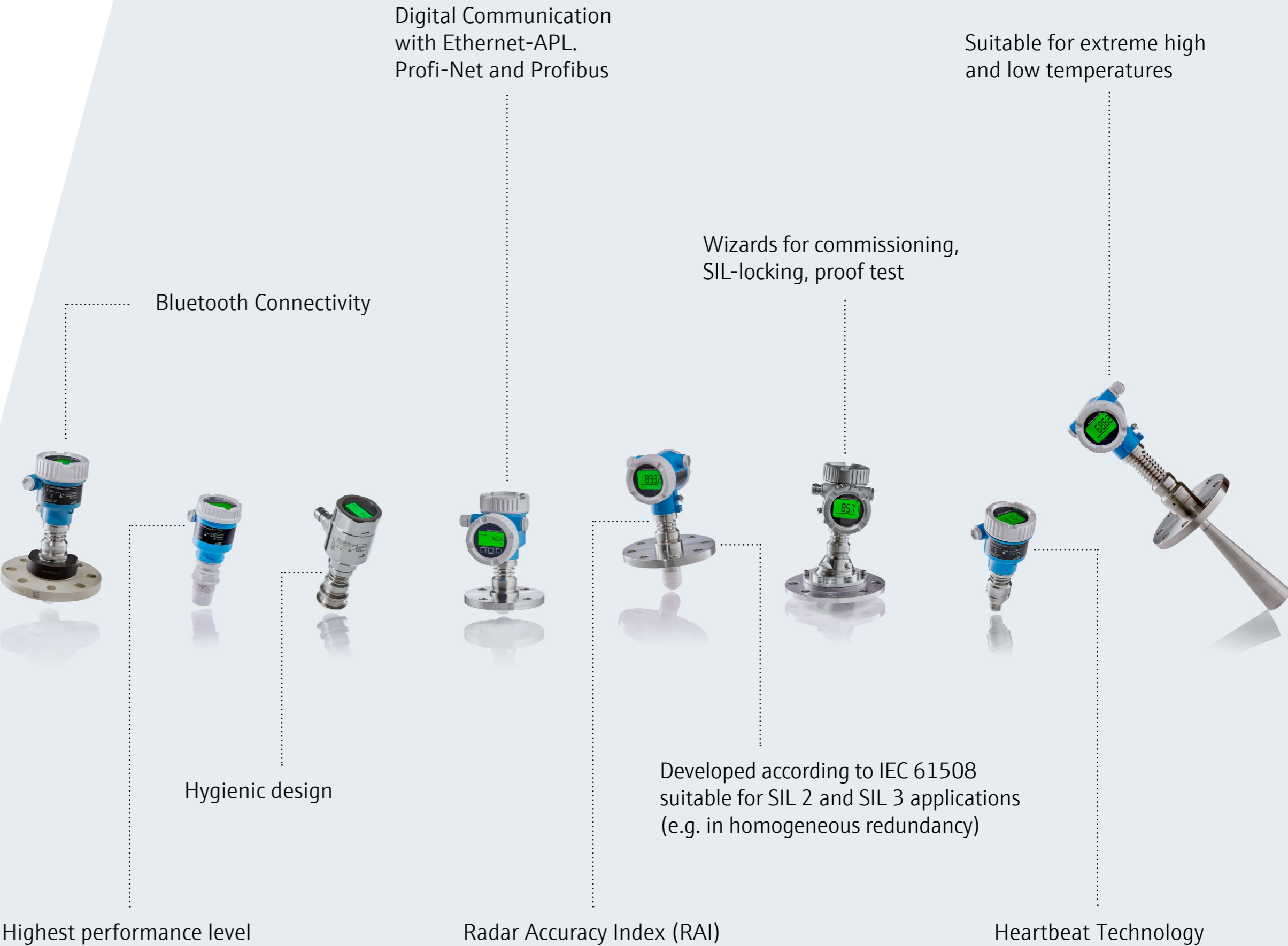
At a glance: Micropilot

Designed for special demands: Yours.

Our new generation of 80 GHz free-space radar sensors meets your individual requirements and makes your processes simpler, safer and more productive:

Remote operation via app, guided assistants (wizards) and development rooted in 20 years of SIL expertise.

Developed using our many years of application and industry know-how, our new generation of 80 GHz radar sensors offers solutions for virtually all radar applications in the primaries, chemical, oil and gas industries as well as in the life sciences and food sectors. Our range includes products optimized for entry into the process industry and a high-temperature version.



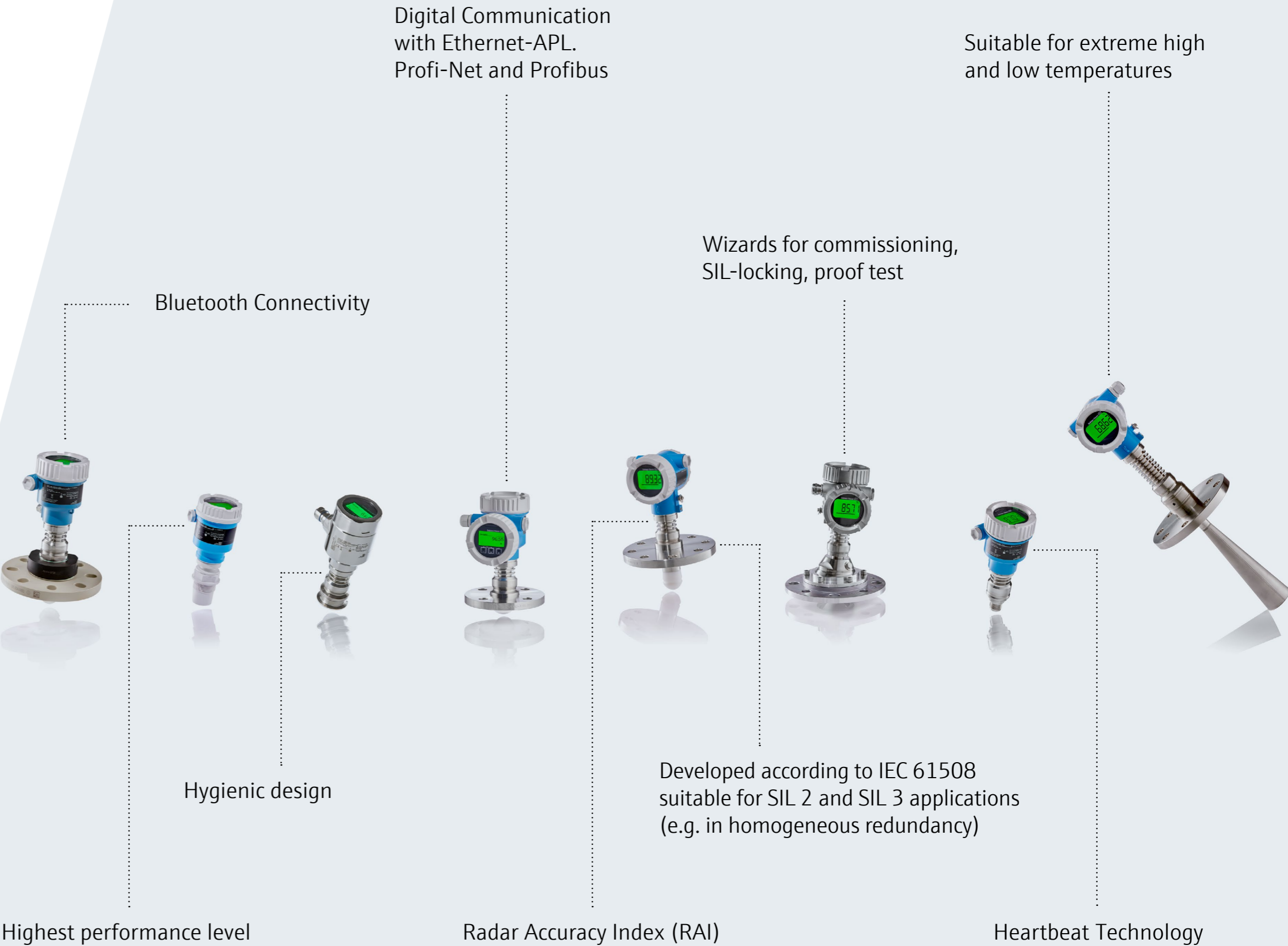
At a glance: Micropilot

Designed for special demands: Yours.

Our new generation of 80 GHz free-space radar sensors meets your individual requirements and makes your processes simpler, safer and more productive:

Predictive maintenance thanks to Heartbeat Technology, device function verification while process is running, future-proof thanks to new communication options such as Ethernet-APL.

Developed using our many years of application and industry know-how, our new generation of 80 GHz radar sensors offers solutions for virtually all radar applications in the primaries, chemical, oil and gas industries as well as in the life sciences and food sectors. Our range includes products optimized for entry into the process industry and a high-temperature version.



Easy to use

More simplicity for your application

Universal applicability, simple troubleshooting, easy commissioning through guided wizards, ease of use and a cross-product line user interface. Learn more.

No matter which industry you are in and which individual requirements your plant needs to meet, our new Micropilot range offers a complete portfolio of products for virtually any application and also enables easy troubleshooting. With its narrow beam angle, factory calibration up to 50 meters, the ability to operate at temperatures from -196 °C to 450 °C, and excellent 80 GHz measurement performance, the Micropilot range delivers precisely the solutions you need in your processes.

Micropilot FMR60B: Straightforward liquid applications with small process connections

Micropilot FMR62B: More demanding liquid applications

Micropilot FMR63B: Hygiene applications

Micropilot FMR66B: Straightforward solid applications

Micropilot FMR67B: More demanding solid applications



Easy to use

More simplicity for your application

Universal applicability, simple troubleshooting, easy commissioning through guided wizards, ease of use and a cross-product line user interface. Learn more.

You do not need a specialist to be able to operate the devices of our radar range. Only a short period of training is required for the new user interface with error diagnostics. This also saves you time. Wizards simplify commissioning and maintenance and thus prevent errors. Intuitive operation is easy via the SmartBlue app on a smartphone or tablet and also via a web browser. And all data is supplied in real time.



Easy to use

More simplicity for your application

Universal applicability, simple troubleshooting, easy commissioning through guided wizards, ease of use and a cross-product line user interface. Learn more.

As a provider of comprehensive industrial process solutions for maximum plant performance, our new radar range has another benefit to offer: The user interface is identical across all measuring tasks. This reduces the time and effort needed to become familiar with the new devices.



Smart safety

Radar level measurement for employee and functional safety

How much safety does your process need? Our new generation of 80 GHz radar sensors offers more than enough.

Do you wish to avoid system outages and guarantee maximum functional safety of your processes? The complete Micropilot range has been developed by Endress+Hauser based on 20 years of SIL expertise and in accordance with IEC 61508. It is suitable for SIL2 and even SIL3 applications (e.g. in homogenous redundancy). Furthermore, with the new high-temperature design, our engineers have for the first time fully welded the ceramic measuring cell of an 80 GHz measuring device to protect it from extreme influences such as temperatures up to 450 °C or pressures up to 160 bar. Guided wizards guarantee the operation of the measuring, e.g. during commissioning, confirmation of safety-related parameters, locking or proof testing.



Smart safety

Radar level measurement for employee and functional safety

How much safety does your process need? Our new generation of 80 GHz radar sensors offers more than enough.

Do your processes run under harsh environmental conditions? Or in places that are difficult to access? Remote access via the SmartBlue app means that you can keep clear of the danger zone. Other safety features include conspicuous red backlighting in the event of faults to enable rapid detection of defects from afar, touch control via optical operating keys when the cover is closed (e.g. in hazardous areas) and communication options via Ethernet-APL for device access without physical access via the web.



Smart safety

Radar level measurement for employee and functional safety

How much safety does your process need? Our new generation of 80 GHz radar sensors offers more than enough.

For users involved in applications where safety is of particular importance, such as in the chemical industry, our new 80 GHz free-space radar sensors are ideally equipped. Wizards prevent errors during commissioning, parameter configuration and proof testing. If new devices are being set up, measuring point parameters can be transferred quickly and safely with the HistoROM mobile data unit when the electronics unit is replaced.



Increased productivity

Always one step ahead

Heartbeat Technology, wizards as well as the mobile data unit HistoROM increase the reliability and productivity of your process.

The challenges involved in achieving efficiency and productivity gains are mounting. Here too, our new Micropilot range with advanced Heartbeat Technology offers everything you as a user could wish for. By monitoring process conditions, such as foam, processes can be optimized. Anti-foam agents can be used selectively, for example. Monitoring also enables the detection of anomalies such as build-up, and enables predictive maintenance. The risk of unplanned process downtime is effectively reduced. With Heartbeat Verification and the radar accuracy index (RAI), accuracies can be checked and calibration cycles extended and verified in a traceable manner in accordance with DIN ISO 9001. To ensure that you are aware of the measuring device condition at all times and are able to take the required action, the device condition is displayed in accordance with NAMUR NE 107. If problems occur, they can be resolved quickly by taking specified corrective measures.



Increased productivity

Always one step ahead

Heartbeat Technology, wizards as well as the mobile data unit HistoROM increase the reliability and productivity of your process.

Thanks to the HistoROM mobile data unit and the easy transmission of measuring point parameters, the setup and maintenance of devices is quick and hassle-free. This saves time and other resources. The intuitive operation of the devices also saves time. Wizards detect process anomalies as well as changes in loop characteristics before problems and costs arise.



Increased productivity

Always one step ahead

Heartbeat Technology, wizards as well as the mobile data unit HistoROM increase the reliability and productivity of your process.

Are you ready for digital transformation and Industry 4.0? With the new radar range, you most certainly are! The new Micropilot is ready for use in an IIoT environment and is therefore an investment in the requirements of the future. The possibility to connect the field level to state-of-the-art communication options such as Ethernet-APL for use in process plants enables plant-wide data transparency with high-speed data transmission, standardized networks and increased plant availability.



At a glance: Micropilot

Easy to use

Smart safety

Increased productivity

Chemical industry, oil & gas

Mining, minerals, metals

Hygienic applications

Chemical industry, oil & gas

Significantly safer

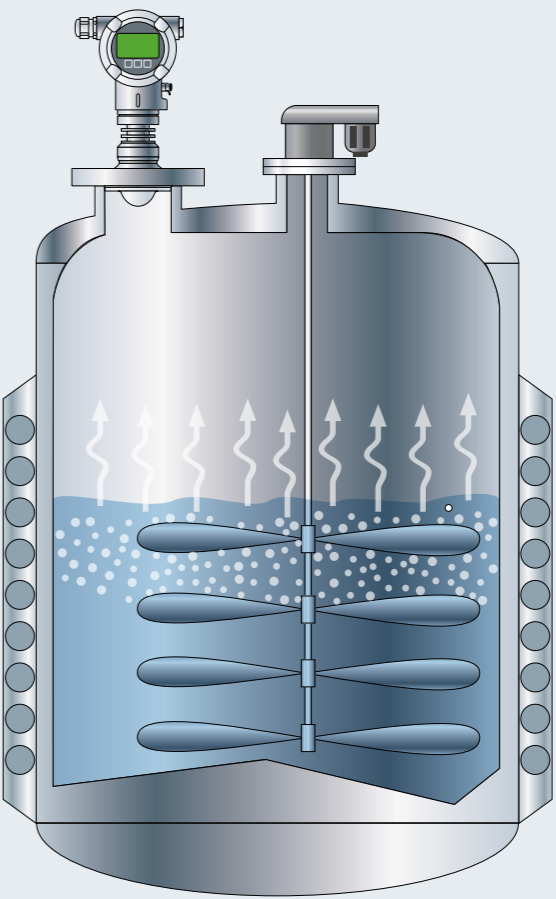
Do you have particularly stringent requirements for the safety of your plant processes? Our new generation of 80 GHz radar sensors significantly increases your safety. With remote operation via app and simplified troubleshooting, these devices are designed to protect your staff. Systematic errors are avoided through the use of guided wizards for commissioning, SIL locking and proof testing. Changes to safety-related parameter settings can be easily identified by means of the CRC checksum. Heartbeat Verification verifies the device function in less than three minutes and can be easily integrated into your asset management systems without interrupting the process or having to remove the device.



Chemical industry, Oil & gas

Significantly safer

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Process data

Measuring task: Level measurement

Measuring point: Armored casing

Measuring range up to: 15m

Medium: Wide range of liquids

Process temperature: –40 bis 200 °C

Process pressure: –1 to +10 bar

Specific challenges:

Changing media, turbulent product surface, foam, agitators and heating coils

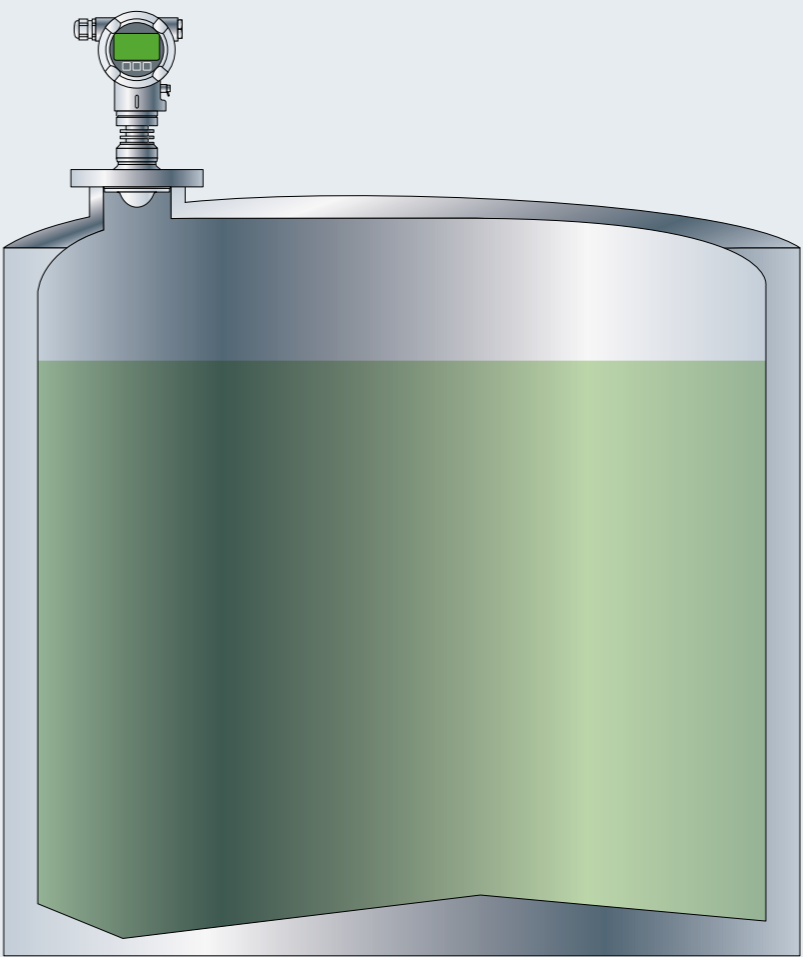
Your demands. Our radar.

Under the harsh conditions in reactor vessels, the **Micropilot FMR62B** combines 80 GHz high-precision measurement with the benefits of the high-temperature version. Why not benefit from additional advantages such as the high chemical resistance of the PTFE antenna, interference signal oppression, non-contact level measurement with radar, remote access via Bluetooth®, guided SIL proof-testing and foam detection with Heartbeat Technology.

Chemical industry, Oil & gas

Significantly safer

Do you have particularly stringent requirements for the safety of your plant processes? Our new generation of 80 GHz radar sensors significantly increases your safety. With remote operation via app and simplified troubleshooting, these devices are designed to protect your staff. Systematic errors are avoided through the use of guided assistants (wizards) for commissioning, SIL locking and proof testing. Changes to safety-related parameters settings can be easily identified by means of the CRC checksum. Heartbeat Verification verifies the device function in less than three minutes and can be easily integrated into your asset management systems without interrupting the process or having to remove the device.



Process data

Measuring task: Level measurement and point level detection

Measuring point: Tank

Measuring range up to: 20m

Medium: Liquid primary and intermediate products

Process temperature: –40 bis 200 °C

Specific challenges: Changing media

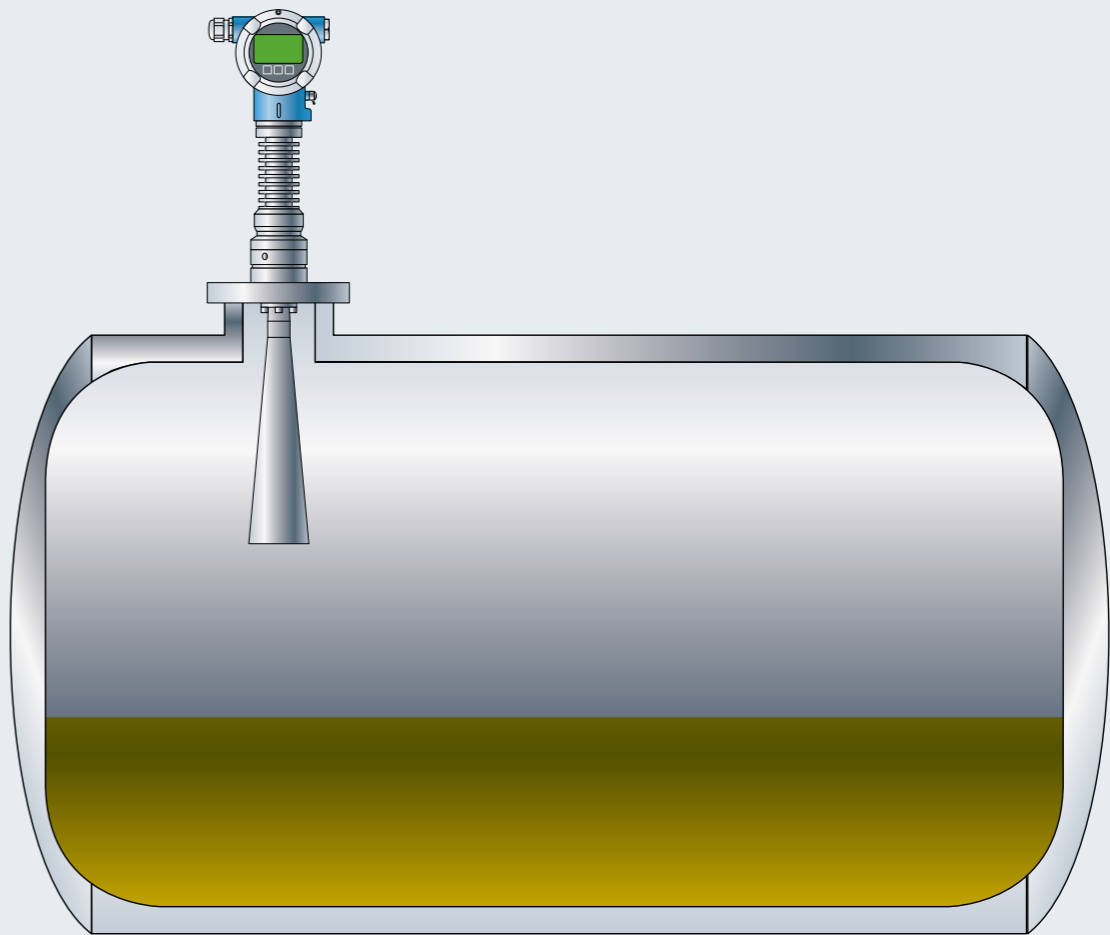
Your demands. Our radar.

Are you using large tanks and looking for tried-and-tested radar measuring technology you can rely on? The **Micropilot FMR62B** delivers continuously reliable measurement results, regardless of changes in density or temperature. The proven drip-off antenna ensures stable and accurate measurement, even in the presence of condensation. The narrow beam angle and the excellent signal focus guarantee a high level of accuracy while maintenance-free operation ensures a long service life.

Chemical industry, Oil & gas

Significantly safer

Do you have particularly stringent requirements for the safety of your plant processes? Our new generation of 80 GHz radar sensors significantly increases your safety. With remote operation via app and simplified troubleshooting, these devices are designed to protect your staff. Systematic errors are avoided through the use of guided assistants (wizards) for commissioning, SIL locking and proof testing. Changes to safety-related parameters settings can be easily identified by means of the CRC checksum. Heartbeat Verification verifies the device function in less than three minutes and can be easily integrated into your asset management systems without interrupting the process or having to remove the device.



Process data

Measuring task: Level measurement

Measuring point: Tank

Measuring range up to: 35m

Medium: Toxic liquid media

Process temperature: –50 bis 250 °C

Process pressure: –1 to 64 bar

Specific challenges:

Highly toxic, chemically aggressive, volatile media

Your demands. Our radar.

The new housing design and the high level of SIL expertise of Endress+Hauser prove particularly useful when you have strict safety measures to comply with. Developed in accordance with IEC 61508, the **Micropilot FMR62B** with new ceramic process separation is suitable for SIL 2 applications. An additional glass seal and resistant materials protect the device from external influences such as temperatures up to 450 °C or pressure up to 160 bar. Maintenance-free operation and intuitive operation lighten the workload of your staff.

Mining, minerals, metals

Extremely easy

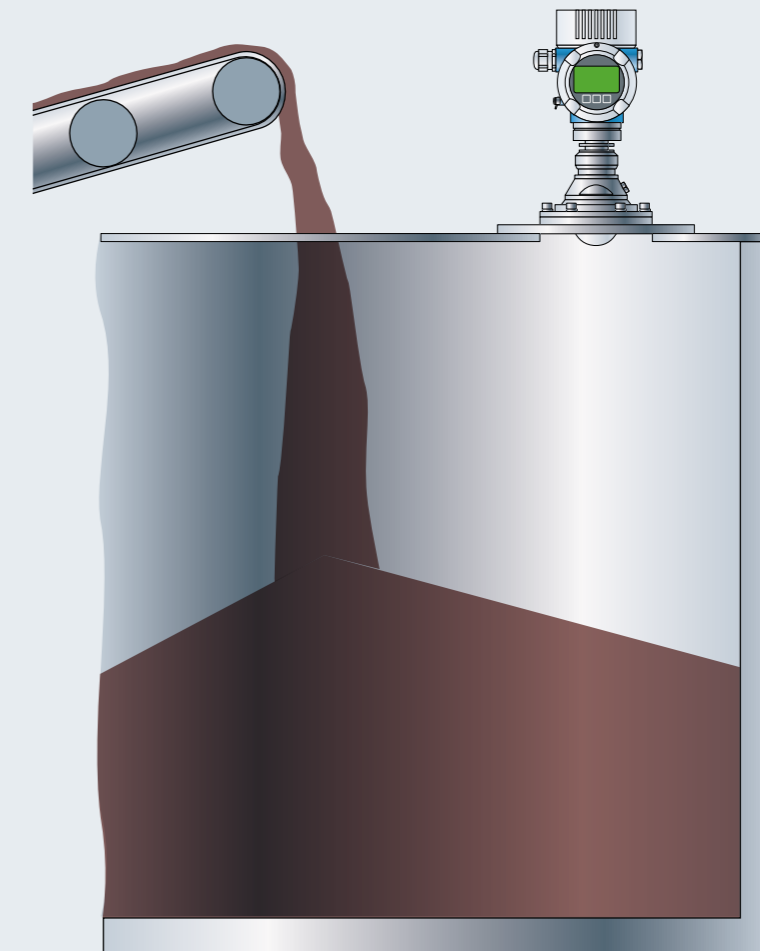
As users in applications involving primaries, you benefit especially from easy-to-use measuring technology with maximum reliability, even in harsh conditions. It is precisely in these situations that our new generation of radar devices offers a wide range of solutions from commissioning to trouble-shooting. Wizards guide the staff through the commissioning process, the device is operated and error analysis is performed via Bluetooth® and, when replacing devices, parameters are transferred via HistoROM without any data loss. With a measuring frequency of 80 GHz, the new radar range offers maximum accuracy combined with a narrow radar beam angle for exact measurement even in narrow vessels and without the influence of pressure, temperature or dust.



Primaries, metals, mining

Extremely easy

As users in applications involving primaries, you benefit especially from easy-to-use measuring technology with maximum reliability, even in harsh conditions. It is precisely in these situations that our new generation of radar devices offers a wide range of solutions from commissioning to trouble-shooting. Assistants (wizards) guide the staff through the commissioning process, the device is operated and error analysis is performed via Bluetooth® and, when replacing devices, parameters are transferred via HistoROM without any data loss. With a measuring frequency of 80-GHz, the new radar range offers maximum accuracy combined with a narrow radar beam angle for exact measurement even in narrow vessels and without the influence of pressure, temperature or dust.



Process data

Measuring task: Level measurement

Measuring point: Stockpile

Measuring range up to: 50m

Medium: Stones, gravel and sand

Process temperature: –40 bis 50 °C

Specific challenges:

Weather conditions such as rain, snow and wind

Your demands. Our radar.

When storing gravel or sand in stockpiles, the **Micropilot FMR66B** allows you to automate optimal surface filling, regardless of material flow and weather conditions. Dust does not hinder the accurate recording of the level e.g. at conveyor belt transfer stations. Heartbeat Monitoring enables early detection of build-up and predictive maintenance.

Primaries, metals, mining

Extremely easy

As users in applications involving primaries, you benefit especially from easy-to-use measuring technology with maximum reliability, even in harsh conditions. It is precisely in these situations that our new generation of radar devices offers a wide range of solutions from commissioning to trouble-shooting. Assistants (wizards) guide the staff through the commissioning process, the device is operated and error analysis is performed via Bluetooth® and, when replacing devices, parameters are transferred via HistoROM without any data loss. With a measuring frequency of 80-GHz, the new radar range offers maximum accuracy combined with a narrow radar beam angle for exact measurement even in narrow vessels and without the influence of pressure, temperature or dust.



Process data

Measuring task: Level measurement and point level detection

Measuring point: Silo

Measuring range up to: 5m

Medium: Stones, gravel and sand

Process temperature: –40 bis 50 °C

Specific challenges:

Extremely loud and dusty environments, abrasion

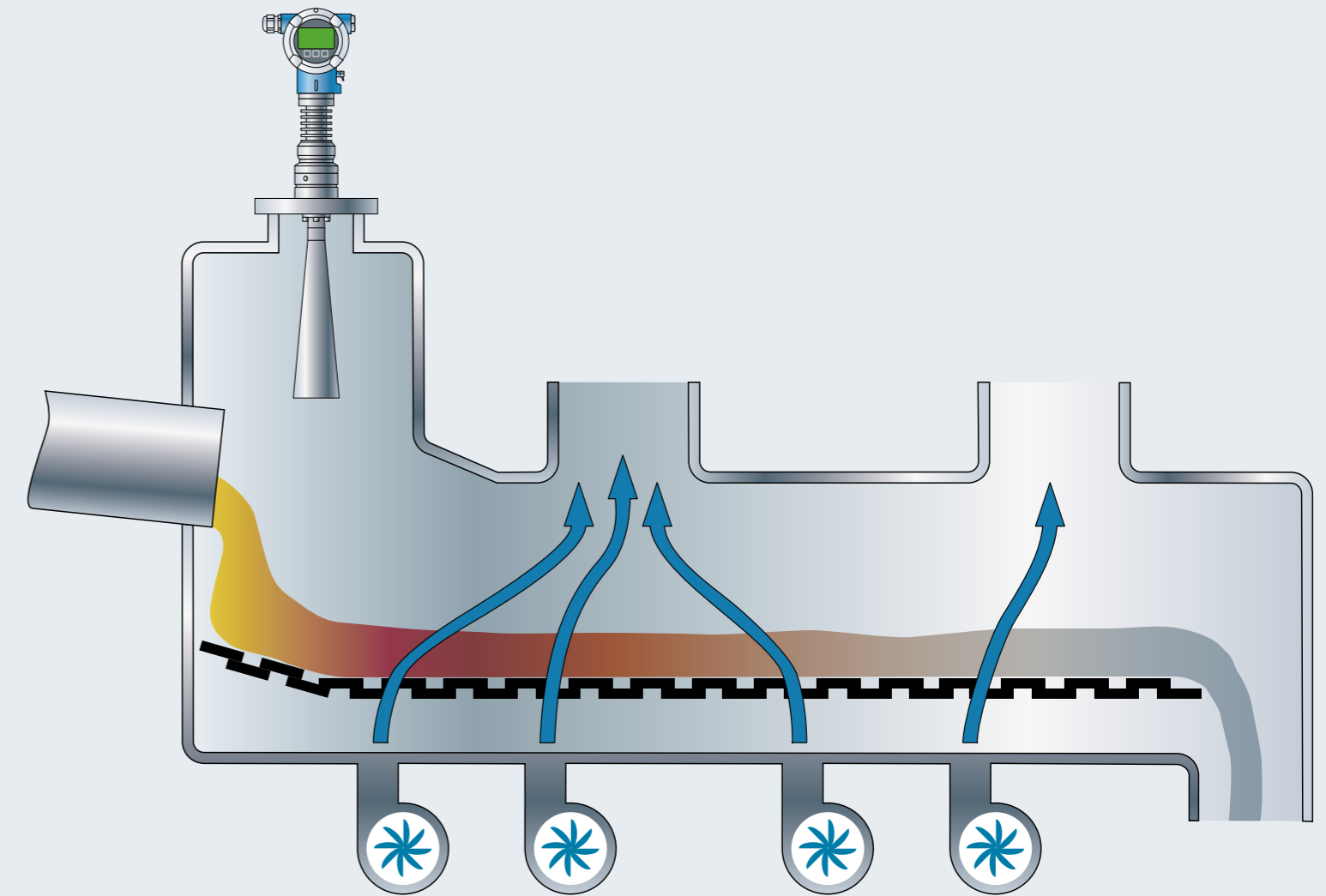
Your demands. Our radar.

Maximum reliability even in cement, buffer and production silos: Abrasion or product humidity do not hinder maintenance-free, contact-free measurement. Heartbeat Monitoring detects build-up at an early stage, enabling predictive maintenance of equipment.

Primaries, metals, mining

Extremely easy

As users in applications involving primaries, you benefit especially from easy-to-use measuring technology with maximum reliability, even in harsh conditions. It is precisely in these situations that our new generation of radar devices offers a wide range of solutions from commissioning to trouble-shooting. Assistants (wizards) guide the staff through the commissioning process, the device is operated and error analysis is performed via Bluetooth® and, when replacing devices, parameters are transferred via HistoROM without any data loss. With a measuring frequency of 80-GHz, the new radar range offers maximum accuracy combined with a narrow radar beam angle for exact measurement even in narrow vessels and without the influence of pressure, temperature or dust.



Process data

Measuring task: Level and pressure measurement

Measuring point: Conveyor belt

Measuring range up to: 1m

Medium: Burnt clinker

Process temperature: 0 to 1,500 °C

Process pressure: 0 to 100 mbar

Specific challenges:

High temperatures, dirt and buildup

Your demands. Our radar.

Burnt clinker must be cooled in the clinker cooler from approx. 1,300 °C down to approx. 200 °C. At temperatures over 1,000 °C, the pressure and material height can be monitored as required and measured without contact by radar devices using the high-temperature version. The temperature-resistant antenna system has a long service and is cooled effectively by means of a fan or compressed air.

Hygienic applications

Uncompromisingly hygienic

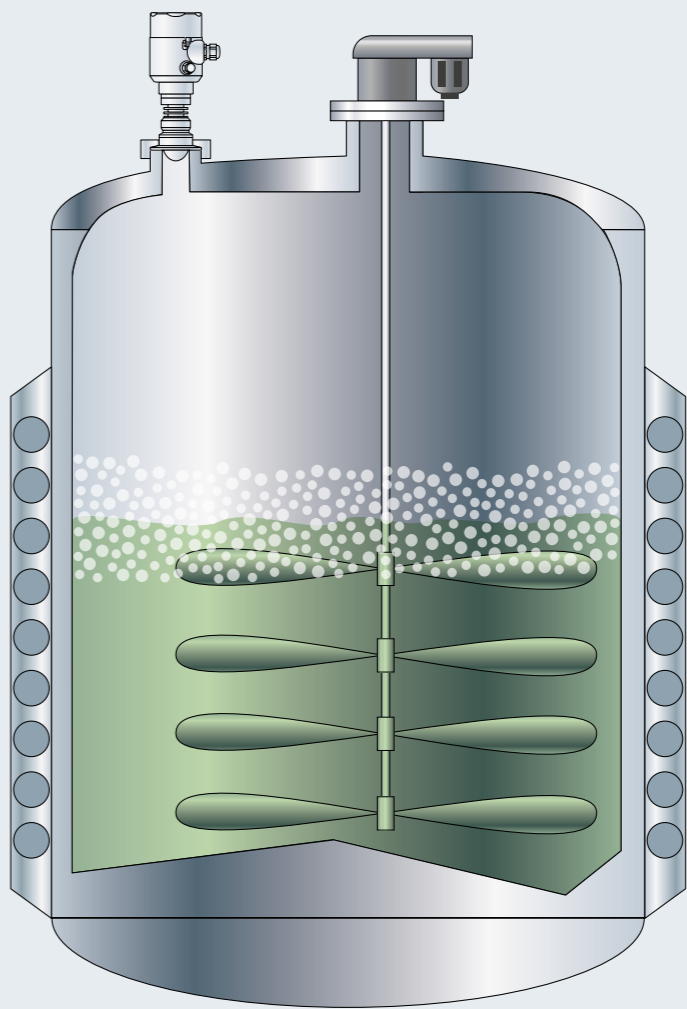
Do you require high-precision level measurements in hygienic environments? Our non-contact FMR63B radar sensor offers the improved measurement performance, simplicity, safety and efficiency of our new Micropilot generation of 80 GHz radar sensors, even in uncompromisingly hygienic applications. The stainless-steel measuring device can be cleaned with aggressive cleaning agents, such as H_2O_2 , and meets the strictest compliance standards. From the seal to the process connection, the parts of the sensor in contact with the medium meet the requirements of EHEDG, 3-A certifications as well as ASME BPE. With its narrow beam angle, the measuring device is also suitable for narrow tanks with fittings (e.g. agitators) and is optimized for rapidly changing levels. Heartbeat Technology with Radar Accuracy Index and foam and build-up detection, Ethernet-APL and wizards also increase efficiency and simplify your plant processes.



Hygienic applications

Uncompromisingly hygienic

Do you require high-precision level measurements in hygienic environments? Our non-contact FMR63B radar sensor offers the improved measurement performance, simplicity, safety and efficiency of our new Micropilot generation of 80 GHz radar sensors, even in uncompromisingly hygienic applications. The stainless-steel measuring device can be cleaned with aggressive cleaning agents, such as H_2O_2 , and meets the strictest compliance standards. From the seal to the process connection, the parts of the sensor in contact with the medium meet the requirements of EHEDG, 3-A certifications as well as ASME BPE. With its narrow beam angle, the measuring device is also suitable for narrow tanks with fittings (e.g. agitators) and is optimized for rapidly changing levels. Heartbeat Technology with Radar Accuracy Index and foam and build-up detection, Ethernet-APL and wizards also increase efficiency and simplify your plant processes.



Process data

Measuring task: Level measurement

Measuring point: Reactor

Measuring range up to: 5 m

Medium: Microorganisms

Process temperature: Up to 150°C

Process pressure: –1 to 5 bar

Specific challenges: Frequent foam formation and sterilization

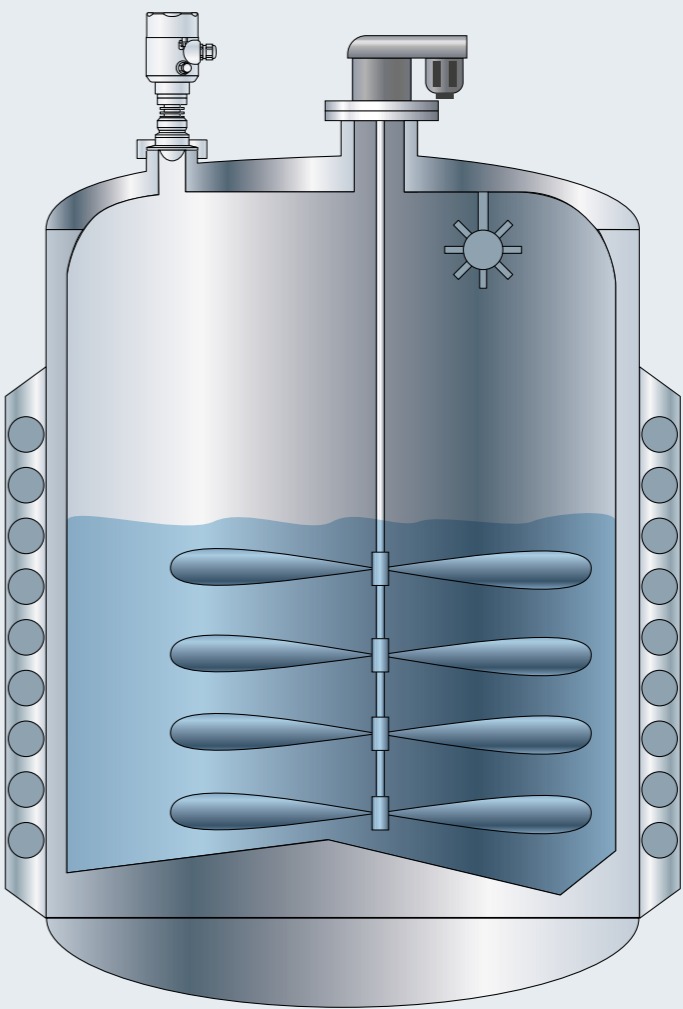
Your demands. Our radar.

Your radar measuring technology for level measurement in the production of enzymes, proteins and antibodies is subject to particularly rigorous hygiene requirements. Even the slightest degree of contamination can lead to a production stoppage and a cleaning of vessels and parts in batch-fed operation. The **Micropilot FMR63B** is suitable for external cleaning with aggressive cleaning agents, such as hydrogen peroxide (H_2O_2) and is therefore suitable for installation in cleanrooms. With approvals in accordance with EHEDG, 3-A and ASME BPE, the Micropilot FMR63B can even be installed in strictly hygienic environments.

Hygienic applications

Uncompromisingly hygienic

Do you require high-precision level measurements in hygienic environments? Our non-contact FMR63B radar sensor offers the improved measurement performance, simplicity, safety and efficiency of our new Micropilot generation of 80 GHz radar sensors, even in uncompromisingly hygienic applications. The stainless-steel measuring device can be cleaned with aggressive cleaning agents, such as H_2O_2 , and meets the strictest compliance standards. From the seal to the process connection, the parts of the sensor in contact with the medium meet the requirements of EHEDG, 3-A certifications as well as ASME BPE. With its narrow beam angle, the measuring device is also suitable for narrow tanks with fittings (e.g. agitators) and is optimized for rapidly changing levels. Heartbeat Technology with Radar Accuracy Index and foam and build-up detection, Ethernet-APL and wizards also increase efficiency and simplify your plant processes.



Process data

Measuring task: Level measurement

Measuring point: Vessel

Measuring range up to: 1.2 m

Medium: Antibiotics, injection and infusion solutions, blood plasma products

Process temperature: 50 to 150 °C

Process pressure: –1 to 6 bar

Specific challenges: Changing product density, regular cleaning cycles, small vessels, response time and accuracy of the measurement

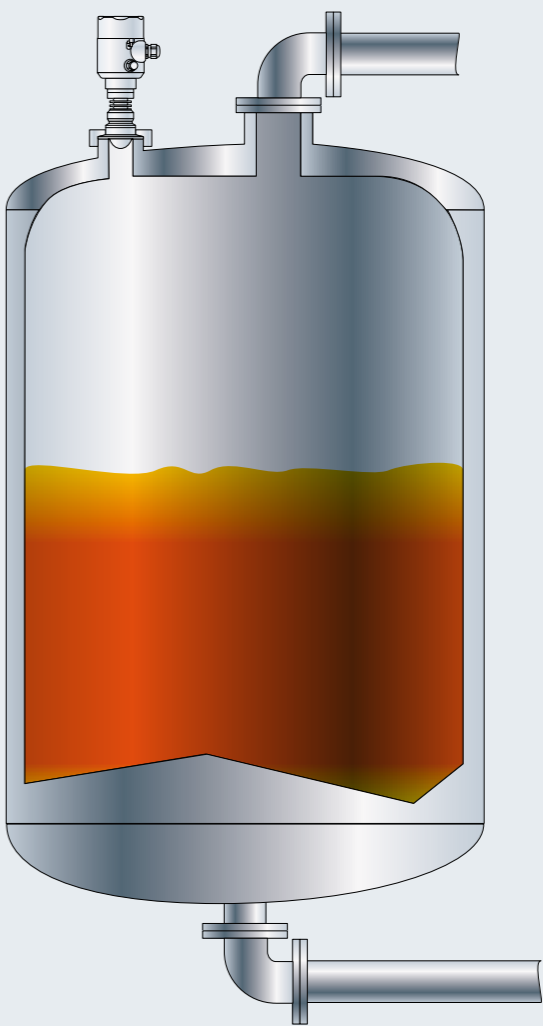
Your demands. Our radar.

In the preparation, storage and transfer of pharmaceutical products such as antibiotics, blood plasma and injection and infusion solutions, optimum level measurement in the mixing vessel is crucial when it comes to maximizing process efficiency and product quality. Here, the **Micropilot FMR63B** ensures reliable and continuously accurate measurement results with a fast response time – even in the case of fluctuating product density and in small vessels. Calibration cycles can be extended significantly by means of Heartbeat Technology with Radar Accuracy Index (RAI). Another benefit is easy cleaning of the measuring device.

Hygienic applications

Uncompromisingly hygienic

Do you require high-precision level measurements in hygienic environments? Our non-contact FMR63B radar sensor offers the improved measurement performance, simplicity, safety and efficiency of our new Micropilot generation of 80 GHz radar sensors, even in uncompromisingly hygienic applications. The stainless-steel measuring device can be cleaned with aggressive cleaning agents, such as H_2O_2 , and meets the strictest compliance standards. From the seal to the process connection, the parts of the sensor in contact with the medium meet the requirements of EHEDG, 3-A certifications as well as ASME BPE. With its narrow beam angle, the measuring device is also suitable for narrow tanks with fittings (e.g. agitators) and is optimized for rapidly changing levels. Heartbeat Technology with Radar Accuracy Index and foam and build-up detection, Ethernet-APL and wizards also increase efficiency and simplify your plant processes.



Process data

Measuring task: Level measurement and level detection

Measuring point: Storage tank

Measuring range up to: 5 m

Medium: Drinks and fruit juices

Process temperature: 0 to 80 °C

Process pressure: 1 to 2 bar

Specific challenges: Density changes in the process

Your demands. Our radar.

Do you use storage tanks with fittings such as agitators or heating coils and do you require accurate measuring technology that functions reliably in the event of temperature shocks in cold media? With its fast 80 GHz technology and the narrow beam angle of its antenna, the **Micropilot FMR63B** for hygienic applications in the food and beverage industry guarantees optimal measurement performance. The radar technology is particularly suited to media with fluctuating densities, where hydrostatic level measurement reaches its limits.

Hygienic applications

Uncompromisingly hygienic

Do you require high-precision level measurements in hygienic environments? Our non-contact FMR63B radar sensor offers the improved measurement performance, simplicity, safety and efficiency of our new Micropilot generation of 80 GHz radar sensors, even in uncompromisingly hygienic applications. The stainless-steel measuring device can be cleaned with aggressive cleaning agents, such as H_2O_2 , and meets the strictest compliance standards. From the seal to the process connection, the parts of the sensor in contact with the medium meet the requirements of EHEDG, 3-A certifications as well as ASME BPE. With its narrow beam angle, the measuring device is also suitable for narrow tanks with fittings (e.g. agitators) and is optimized for rapidly changing levels. Heartbeat Technology with Radar Accuracy Index and foam and build-up detection, Ethernet-APL and wizards also increase efficiency and simplify your plant processes.



Process data

Measuring task: Level measurement

Measuring point: Tank

Measuring range up to: 20 m

Medium: Beer

Process temperature: 3 to 120 °C

Process pressure: 0 to 5 bar

Specific challenges: Foam formation and condensation due to cold and damp environment

Your demands. Our radar.

The new Micropilot FMR63B is designed for a wide range of hygienic applications and specific requirements, as in the case of beverage production for example. The extremely rapid 80 GHz radar measurement is suitable for rapid level changes and turbulent surfaces. Heartbeat Technology detects foam formation at an early stage, so that countermeasures can be adopted in the process at the right time. In addition, the sensor comprises one single piece and enables non-contact measurement without the need to replace seals.



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Your demands. Our radar.

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