

RECHNER
SENSORS
custom-made level control for your industry.

automation highlights 2023

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Every product from the company Rechner Sensors bears the CE mark according to EU regulation 765/2008.



Devices that are RoHS compliant are devices that comply with the EU Directive 2011/65 / EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment



ATEX is the abbreviation for "ATmosphère EXplosive". ATEX certified devices are certified according to the ATEX product directive 2014/34/EU and the European standards for **explosion protection**.

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Devices certified according to IECEx can be used internationally in explosive-endangered areas.



ETL Listed is a **security seal** of approval for the **North American** market. These devices are tested, certified and produced in accordance with UL / CSA safety standards and requirements.



Sensors with this logo are allowed to come into **contact with food** according to the Regulation (EC) No. 1935/2004.



The EHEDG certification is based on **hygienic construction and design**, as well as materials to guarantee the hygienic handling and processing of food and thereby supports the EC **food guidelines**.



IO-Link is the first globally standardized **IO technology** for communicating with sensors and actuators. IO-Link is the evolutionary further development of the previous, tried and tested connection technology for sensors and actuators.



Within the **United Kingdom**, the **UKCA marking** is **mandatory** for technical products. The marking must be checked by the **manufacturer** and/ or a **named body** based in the UK for compliance with the relevant regulations. After testing, a **declaration of conformity** is issued.



The **China Compulsory Certificate (CCC)** is a **certification system** for the **standardisation** of product quality for equipment placed on the market in **China**. Certification by Chinese certifiers is mandatory for equipment in potentially **explosive atmospheres**.



The **Water Resources Protection Act (WHG)** regulates the **protection and use of groundwater and surface waters**, e.g. rivers, lakes, seas, etc. It is a **german national law**.



Safety Integrity Level, SIL for short, is defined in the field of functional safety and in international standardization in accordance with IEC 61508, especially for process plants according to IEC6151, the **safety level** or the **safety integrity level**.
In this case, the requirements refer to **safety requirement level 2**.



Rechner Sensors: *Why us?*

QUALITY COMES FIRST!

For 55 years our main focus has been on quality. This is reflected in the very high standard, and performance, of all Rechner sensors and probes.

Rechner Sensors promise of quality is your advantage:

COMPANY WITH HIGH QUALITY STANDARDS

Rechner Sensors is an international company and always wants to improve and develop in every area. Certifications help you choose the safest and the highest quality products. Rechner Sensors company certificates and guidelines are e.g. **ISO 9001, Code of Conduct, ISO 26000.**

MADE IN GERMANY

'**Made in Germany**' is our guarantee of sensors which are long-lasting and durable.

100% FINAL TEST

Every single Rechner product is tested before it is sent to you. It is through this total testing regime that Rechner Sensors ensure you only receive top quality products.

IN-HOUSE DEVELOPMENT DEPARTMENT

'**THINK OUTSIDE THE BOX**' - Rechner's goal, is innovative customer sensor solutions, which offer you an ideal, and mutually thought out control solution, down to the last detail.

100% TRACEABILITY

Rechner Sensors guarantees one hundred percent traceability of your sensors.

LASER MARKING

Permanently legible, chemically and thermally resistant - thanks to the **laser marking**, your sensor can be identified at any time.

#1

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Sensors with **EX-certificate**

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Sensors with **SIL2-certificate**

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EX meets **IO-Link**

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Sensors with **CCC-certificate**

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Evaluation amplifier with
EasyTeachbyWire

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Sensors for **Food Industry**
Food Grade compliant

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WHG (Federal Water Act)
Overfill protection + Leak detection

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Capacitive sensors **P3**
3 output modes

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DK compensation



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We take on responsibility.

For 60,000 bees.

For humans, animals and environment.

5

Our vision

"As a technology leader with an inventive spirit and the highest standards of quality, we are shaping the automation of tomorrow - for a world that will be more durable, safer and smarter."

Our mission

"Based on the values of a global family business, we live customer proximity through cooperation in partnership and convince with our expertise and development competence in our special field of capacitive sensor technology. In this way, we contribute to the success of our customers, the advancement of our employees and the well-being of our society."

Our values

"Rechner Sensors is a member of the ZVEI (German Electrical and Electronic Manufacturers' Association). Within the association, a Code of Conduct on social responsibility has been developed. The ZVEI Code of Conduct is based on internationally established standards and covers all relevant topics. With our signature, we commit to adhering to these goals for the protection and respect of people, animals and the environment."





Solar power for over a decade.

60%

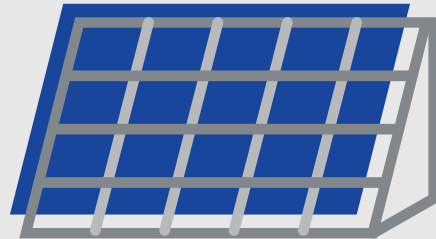
Rechners annual electricity requirement consists of 60 % of its own solar power

=

25

private households

Power generation equivalent to 25 private households



2531

tons CO₂

Avoidance of:
734t CO₂



367 m³

tons hard coal

To remove the same amount of CO₂ from the atmosphere in 10 years, we would have to plant 52,902 trees.

259 t

tons heating oil



50%

50 percent of of Rechner's vehicle fleet is powered by renewable energy.

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E-Bikes

Already 17 e-bikes are used by employees via the so-called job bike offer.



Rechner Sensors: Your Partner.

Capacitive sensors and level probes from Rechner Sensors are the optimal signal transmitters for your level control. Decades of development experience in capacitive sensor technology as well as lived customer proximity enable the variety of capacitive sensors - from high performance to customized solutions.



Classic capacitive sensors

The capacitive sensors generate a capacitive field in the area of the active surface. Every medium, i.e. liquid or bulk material with a dielectric constant $\epsilon_r \geq 1.1$, is recorded. Depending on the model used, the value is output as a switching signal or as an analog signal. The level can be regulated via the connected control system

Binary measurement Analog measurement

- | | |
|-------------------|-----------------------|
| • Normally Open | 4...20 mA or 0...10 V |
| • Normally Closed | 20...4 mA or 10...0 V |
| • Antivalent | |



Sensors and probes for your areas:

- **ATEX Dust EX** zone 20, 21 and 22
- **ATEX Gas EX** Zone 0, 1 and 2
- Food contact
Food Grade EC 1935/2004
- **Chemical** contact
- High temperature ranges up to **250°C**

Level control by contact with the media or level measurement through the container wall
- you will find the right product here.

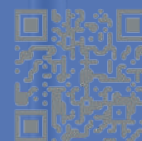
Capacitive sensors and level probes detect all types of products:

- Liquids
- Bulk goods
- Pastes

Solutions for a wide range of industries.

from food & pharma to solar industry.

see Industry overview.



Individuality is close to our heart.

Not only our products are individually and uniquely tailored to our customers, but also our service.
We care.

Capacitive sensors with EX approvals



More about *Ex* approvals.



safety first.

Reliability instead of risk!

ATEX All-in-one meets EasyTeach by wire

from M 8

to M 32



#KA1606



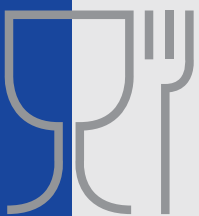
#KA1166



ATEX sensors for
all EX-areas
and all sizes
Gas + Dust

for level control in
hazardous areas:
ex zone 20, 21 and 22 / dust
zone 0, 1 und 2 / gas

+



Food Grade



#KA1685



#KA1686



All in One
= no ex barrier needed

ETW
= Easy Teach by Wire
easy setting

New

Risk avoidance and safety with
our optimized
metal rod probe.

The KI0213

& its advantages:

- Use under
extreme process conditions
< Pressure load up to **10 bar**
< Active zone up to **+ 250 C°**
explosion protection conditions in zones **0** and **20**



1G1D

small.easy.good.

The *small* head and the *slim* electrode make the rod probe a stunning innovation.

In addition, the control works via **EasyTeachbyMagnet**.



Application example agricultural industry

Level control of
explosive bulk materials
e.g. grain / flour

More protection for your explosion area through functional safety.

Safety Integrity Level 2

Functional safety according to IEC 61508/IEC 61511

With the **SIL2** declaration of conformity we declare that our capacitive proximity switches for liquids and solids are suitable for use in protective equipment in accordance with **IEC 61511-1**...

... if the **safety instructions** and **parameters** are observed:

Product according to SIL 2		
Protective function	Overfill protection	Dry run protection
Test interval	≤ 1 year	≤ 1 year
Device type	A	A
HFT1	0 (single-channel use)	0 (single-channel use)
SFF	60%...90%	60%...90%

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The error rate for the analysis is based on **Siemens Standard SN29500** and **PD IEC TR 62380:2004**.

The evaluation of the equipment, including change processes, takes place on the **basis of operational probation**.



#KA1047



#400705

all **SIL2**
certified
Sensors



Functional safety in leak detection.

LEAK sensors with diameter

38 mm, #KA1544



50 mm, #KA1673, KA9037



NAMUR
DIN 60947-5-6



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semiconductor industry
chemical industry

Leakage control in
Clean rooms
Alarm for vessels and
pipelines



For measuring instruments with **explosion** protection approvals, the corresponding safety instructions in the associated **Ex** documentation must also be observed.

New



IO-Link

meets AT



Universal · Smart · Easy

The KA1724

and its integrated IO-Link function.

3G3D



IO-LINK - INTERFACE
Device ID: 1d/000001h
Vendor ID: 1129d/0469h
Baudrate: COM 3 (230.4 kbaud)
Revision: 1.1
Profiles: Smart Sensor
SIO mode: yes
Port Class: A

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IO-Link Starter Pack

IO-Link Master

#IOLM01

simple parameterization
via PC (USB)



Optimal for the *evaluation phase* of your project.

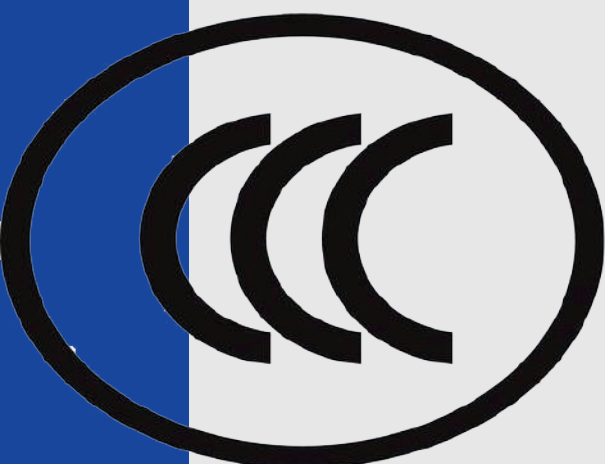
Adjustable via IO-Link master

- Empty and full adjustment possible
- Setting and reading of switch-on **threshold** and **hysteresis**
- **Configuration** and **parameterization data** can be **transferred** from one sensor to another
- **Maximum** switching frequency
- Switch-on and switch-off **delay**
- Normally open contact function **switchable**
- Self-diagnosis + **error** output
- integrated **temperature measurement** at active area
- readable process data value **PDV** (Process Data Value)



Precise.
Refined.
Clever.

Year Of The Rabbit.



China Compulsory Certification

CCC Certification.
A must-have in
China for
hazardous areas.



Ex Barrier

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#N00017

1G1D



#KA0231



1D

NAMUR

CCC certification for inductive and capacitive StEx sensors.
Certified for all Ex zones. Read more.



Evaluator for KX sensors with **eXtreme** wide sensing distance

and for sensors in the high temperature range up to **+250°C**

New

Available with **EasyTeach®**

by wire

by magnet **function**

+ 2 switching points.

XA0066 for KXS sensors of the type M18, M30, M32



XA0067 for KXS sensors of the type M5, M8, M12



easy adjustment by means of magnet.

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Highlights

- Setting optionally via **ETM** or **ETW** function
- ETW- function allows remote adjustment of the sensors via the control of your plant.
- two switching points:
the 2 channel evaluator is **more space-saving** and **economical** than two single-channel evaluators.

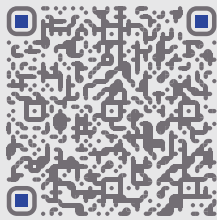


Food grade compliant sensors

Sensors are supplied with food grade **certificates**.



for food.



up to 250°C



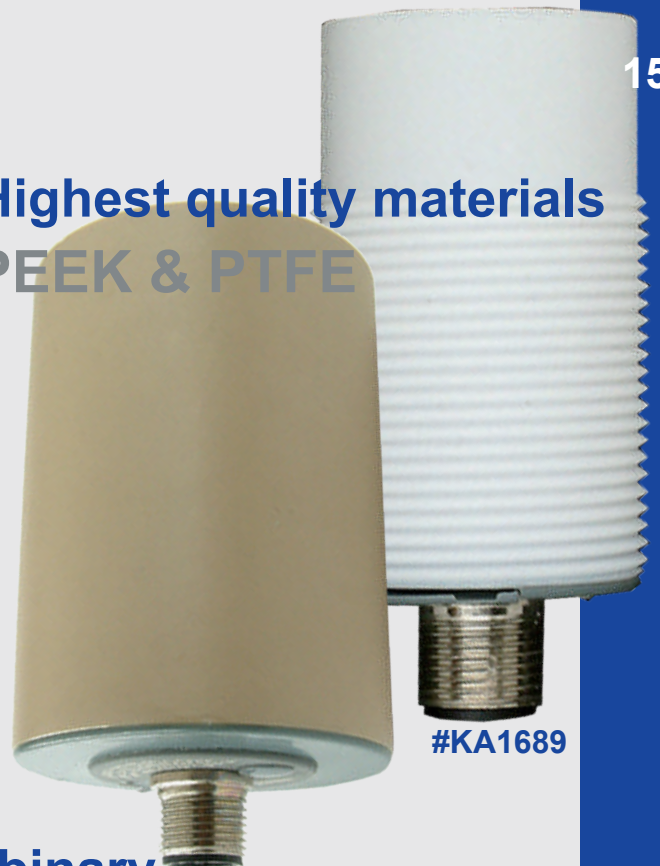
#KX0110

#KA1693



Highest quality materials
PEEK & PTFE

#KA1689



analog / binary #KA1717

cable version
#KA1385



Food & Pharma

The KA1244

& its advantages



- The measurement is independent of the installation position
- Permissible pressure load of the active surface 10 bar



TYPE EL
CLASS I
JUNE 2020

hygienic design

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Suitable accessories
according to **EHEDG**
guidelines

Varivent N Adapter
#196395



Weld-in sleeve
#196394



Capacitive sensors for overflow protection + leakage control



The Water Resources Act (WHG) prescribes **overflow protection** for containers with water-polluting liquids.

simple.
safe.
precise.



3G3D

#KA0799



Z-65.13-572
Z-65.40-573



#KA1268



NAMUR
DIN 60947-5-6

Preserve
Water

WHG - Overfill protection + leakage control

The **Water Resources Act**, is important, as it creates the legal basis to protect surface water and groundwater. It sustainably secures our environment, plus the quality and availability of water, for human consumption, but also for vital flora and fauna. The application of, and the compliance to this law, is monitored by the civil authorities.

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#KA0247



#KA0571



KA0179



KA0161

all WGH
certified
Sensors

Z-65.13-572



Z-65.40-573

Advantages:

The capacitive overfill protection reports the fill level. They trigger an alarm in good time before the maximum permissible filling level is reached in the container. For you this means:

The capacitive overfill protection controls the fill level and offer operational safety.

P3

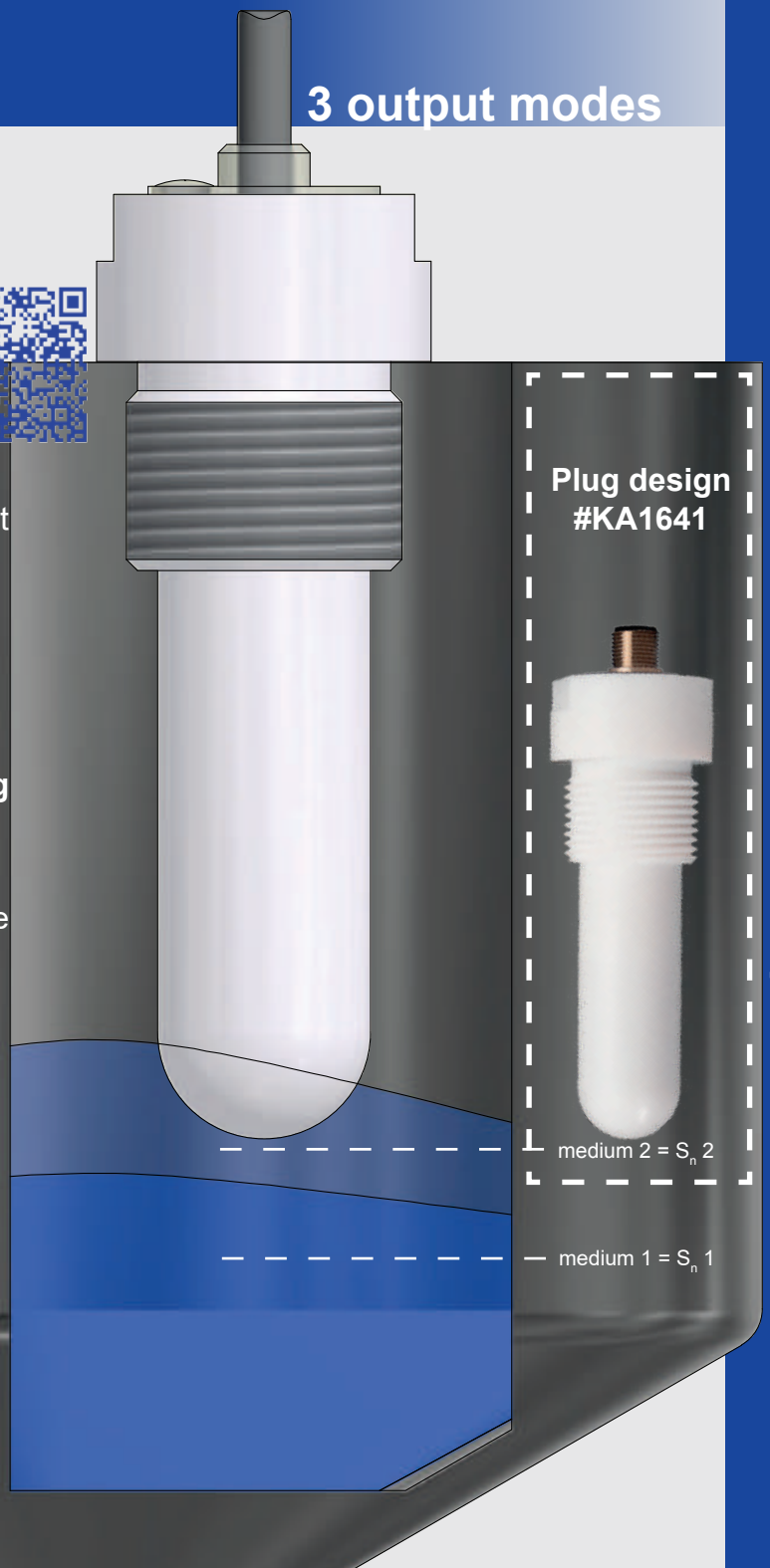
3 output modes

The KA1649 & its P3 function



- **3 output modes:**
Normally open / normally closed / antivalent switchable
- **Changing media:**
Detect fill levels of different media
- **Detection of two different switching points**
Adjustment of min. / max. with one device & without readjustment of the sensor!

More freedom, time saving & easy to program.



EasyTeach by wire

Also available as

EasyMount
= Easy to assemble

- #KA8981 EasyTeachbyMagnet
- #KA8966 EasyTeachbyWire

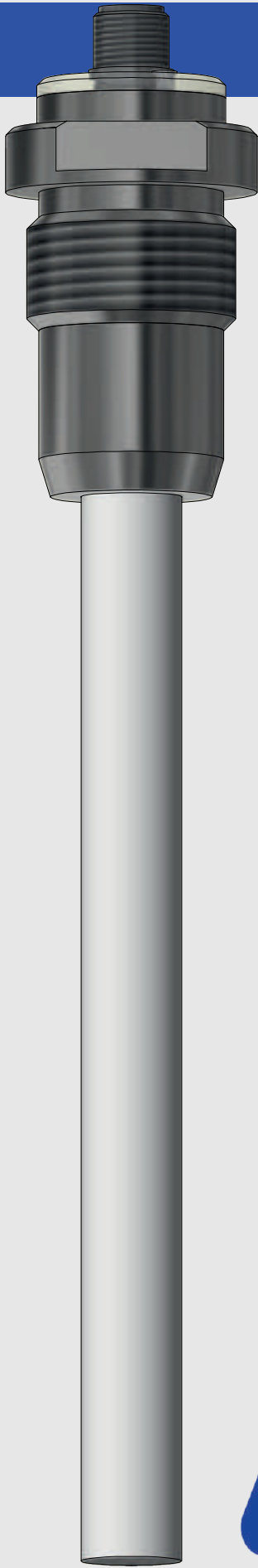
The Gamechanger '23.

Our analog level probe
with integrated DK compensation.

TiLevel

ϵ_r

Probes detect media already from
dielectric constant $\epsilon_r > 1,2$



Material	ϵ_r
Glue	2,0
Sawdust	1,3
Cellulose	1,2
Flour	2,5
Sugar	1,8

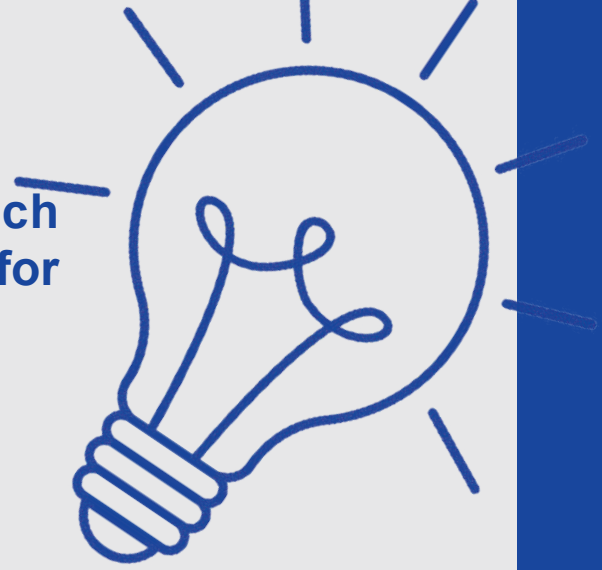
- Adjustment in the empty vessel, i.e. no medium necessary for adjustment
- No need to rebalance when changing products

Our innovation
solves your product
changeover
challenge.

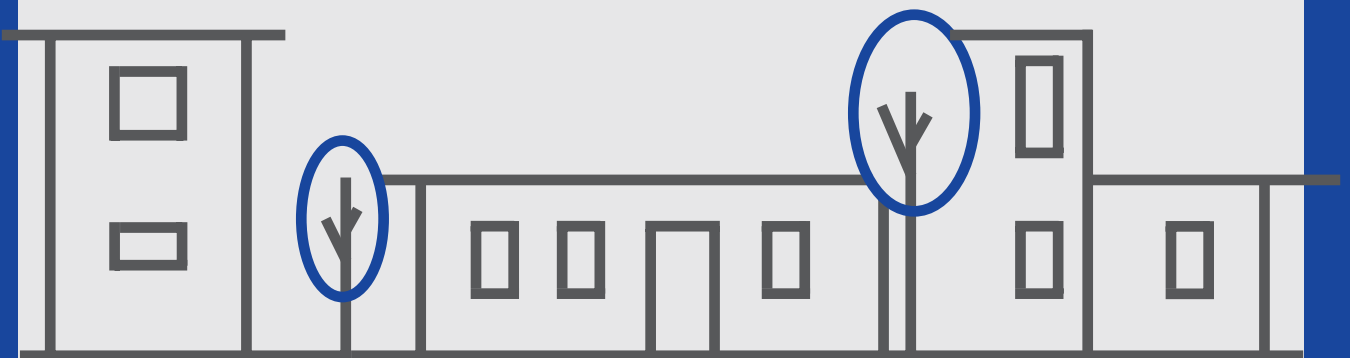
There is no need for adjustment when
changing products - this allows you to
focus on other things!

Probe material: GKF, PEEK or PTFE?
Probe dimensions: 400 mm, 800 mm or 1,500 mm?
True to our motto
Custom-made level control for your industry
we adapt our probe to your requirements.

You are not sure which sensor is best suited for your application?



Ask the experts.



Customer support guaranteed!

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