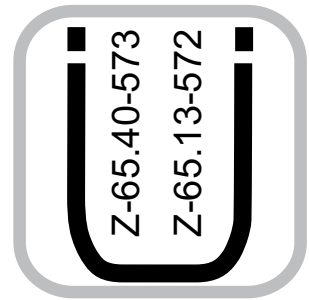


3D
Printing

RECHNER

Expert in Capacitive Level Control
Additive Production





For all transactions, the newest version of the „General Conditions of Sale and Delivery for Products and Services of the Electrical Industry ZVEI“ shall apply, along with the supplementary conditions „extended reservation of proprietary rights“, together with the supplements listed on our order confirmations and/or invoices.

All specifications are subject to change without notice. Reprint, even in part, only with our consent.

© RECHNER Germany 01/2020 EN - Printed in EU, all rights reserved.

Edition January 2020

3D

Additive Production, 3D Printing - Milestones to the future!

**Capacitive Sensors
from RECHNER help you to
achieve your goal!**

**We are experts for
capacitive level control of
bulk material, pastes or liquids**

*Sensors made for
You!*

In this Brochure we show a selection of products used for level control in 3D printing machines

Classic Capacitive Sensors
Page 9 - 21

Capacitive Level Probes
I-Level
Page 22 - 23

ADDITIVE PRODUCTION - 3D PRINTING - INNOVATION FOR SHAPING THE FUTURE

Additive Manufacturing – also called 3D printing – changes the production processes. It enables faster prototype production so speeding up the progress for innovations and developments. The additive production allow the creation of designs and shapes that were impossible before. In addition it makes it possible to realise structures that reduce the product weight in such a way that the mechanical strength remain the same or becomes even stronger.

Even more interesting is the rapid development towards mass production, The production times are constantly reduced and the processes are accelerated. Many companies around the world are working to optimise series production.

SERIES PRODUCTION REQUIRE SAFE PRODUCTION PROCESSES

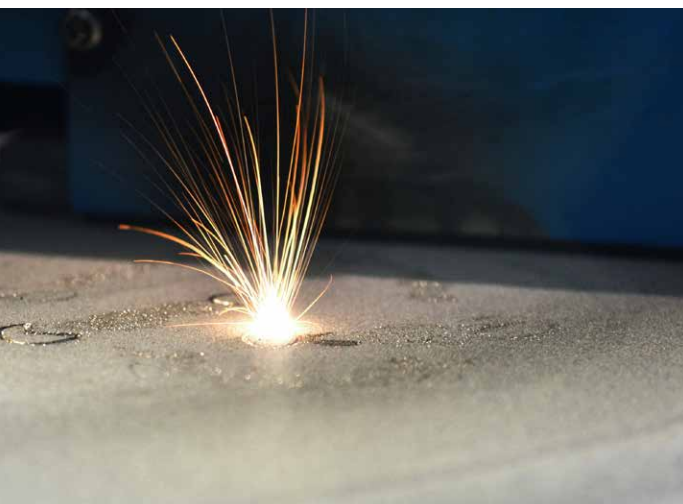
This is the interface that leads to us. Larger production volumes require safe and reliable material availability.

Capacitive level sensors and probes are predestined for this purpose. Capacitive Sensors detect all products with an dielectric constant from $\epsilon_r \geq 1.1$.

Capacitive sensors do their job irrespective of the physical state of the product to be detected.

They detect for example the levels of metal powder, plastic powder or ceramic base materials.

Resins, pastes and liquids are also reliably detected by our capacitive sensors as well as controlling the filling levels.



Selective Laser Melting

*We are
part of it!*

DIFFERENT TECHNOLOGIES - ONE THING IN COMMON - MATERIAL AVAILABILITY MUST BE ENSURED.

The procedures are different		
Technology	Abbreviation	Technology
Fused Deposition Modeling	FDM	Melting
Fused Filament Fabrication	FFF	Melting
Fused Layering Modeling	FLM	Melting
Layer Laminated Manufacturing	LLM	Gluing
Selective Laser Sintering	SLS	Melting
Selective Laser Melting	SLM	Melting
Polyjet Modelling	PJM	Hardening
Multi-Jet Modeling	MJM	Hardening
Stereolithography	SLA	Hardening
Digital Light Processing	DLP	Hardening

Examples of technologies. This list do not stand for completeness.

Used materials are for example:

Powders:

Plastics, like ABS, PLA, Nylon, PET, PP, PEEK.

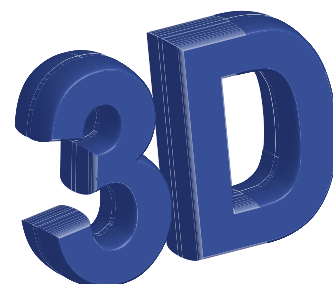
Plastic mixtures with wood, for instance.

Biological materials like sand or technical ceramics.

Metals and alloys.

Liquids or pastes:

UV sensitive liquid plastics, epoxy resins, artificial resins or elastomers.



APPLICATION EXAMPLES OF CAPACITIVE LEVEL CONTROL.

BINARY OR ANALOGUE LEVEL CONTROL IN THE STORAGE CONTAINER

Dependent on the measuring tasks and the size of the storage container different solutions can be offered.

Based on our decades of experience in the area of capacitive level measurement of various materials we have a wide range of suitable capacitive standard sensors available.

So for instance our capacitive sensors of the S26 series that have special advantageous characteristics when the material tends to stick and accumulate on the sensors active surface.

In addition, our i-Level, True-Level and Per-Level Probes have proven their qualification. Both in small and in large containers up to 2 m in height.

CUSTOMER AND APPLICA- TIONS SPECIFIC VARIANTS ON REQUEST – EVEN IN SMALL QUANTITIES

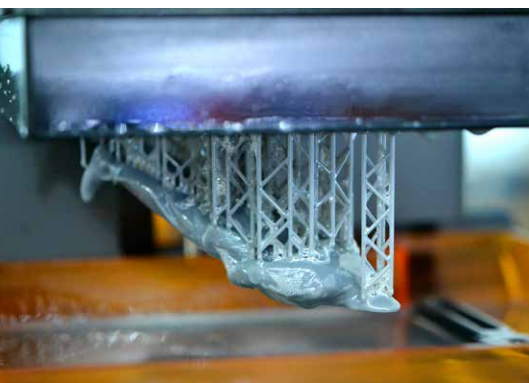
If we do not have a suitable standard type in our range which includes 1.500 models, then it will be a pleasure for our developing engineers to create together with you the most suitable model for your specific application.

ATEX AND IECEx CERTIFIED SENSORS

Your printing system is defined as an area with risk of explosion? No problem we have the solution. Powders are relatively often used as the basic material for a large number of technologies in the field of additive manufacturing.

These powders are normally very fine and there exists the possibility that the powder/air mixture creates an atmosphere which is highly inflammable.

Our so-called All-in-One sensors provide a special feature in that they can be used without additional Ex-barrier.



Stereolithographie

Our Experience Your Advantage!

OUR CAPACITIVE SENSORS MEASURE THE LEVEL CONTROL IN YOUR STORAGE OR DOSING SYSTEM FOR ADDITIVE MANUFACTURING.

What is your challenge?

- The product to be detected is:
 - Adhesive
 - Conductive
 - Viscous
- There is a risk of explosion
 - by dust - zone 20, 21 or 22
 - by gas - zone 0, 1 or 2
- You require hygienic design for food
- You require continuous level measurement 4...20 mA or 0...10 V
- Measuring security
- Reliability
- Temperature resistance (dependent on the model up to +250°C possible)
- One adjustment for different materials? Please ask for our TrueLevel probes with compensation of dielectric constant (DC).
- Others?

WE ARE LOOKING FORWARD TO SELECT OR DEVELOP WITH YOU THE RIGHT SENSOR FOR YOUR SPECIFIC PRINTING MACHINE.

Save and reliable level control!

What can we do for you?

MEDIA OPTIMIZATION

High Performance Sensors with media optimization:
Detection of different products with the same sensitivity adjustment.

MOUNT-AND-GO

Preset sensors especially for your application.

FURTHER OPPORTUNITIES WITH ANALOGUE SENSORS

Determine the respective setting for different products once empirically and then identify the materials by the value stored in the PLC.

This saves repeated settings when changing materials.

Binary or analogue





Capacitive Sensors with Analogue Output Series 80 - PNP

Output current 4...20 mA / 20...4 mA
Voltage output 0...10 V / 10...0 V

Housing M 12 x 1

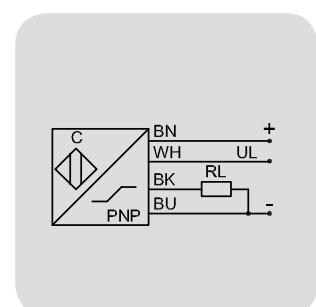
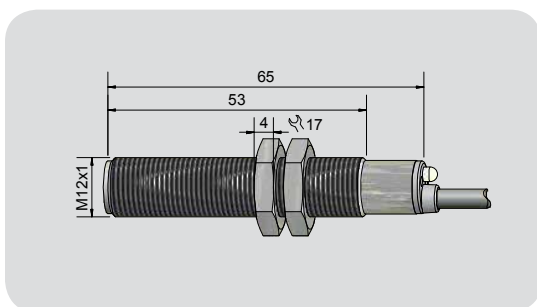
- Housing material: Stainless steel VA No. 1.4305 (AISI 303)
- Operating range 0...5 mm
- Current and voltage output in the same sensor.



Technical data	Flush mountable	Flush mountable
Operating range	0...5 mm	0...5 mm
Linear range	0...4 mm	0...4 mm
Electrical version	4-wire DC	4-wire DC
Output function	Analogue	Analogue
Type Analogue	KAS-80-A12-IL20/UL10-M12-PTFE/VAb-Z02-1-HP	KAS-80-A12-IL4/UL0-M12-PTFE/VAb-Z02-1-HP
Art. No.	KA 1308	KA 1307
Operating voltage (U _B)	15...30 V DC	15...30 V DC
Output signal	20...4 mA, 10...0 V	4...20 mA, 0...10 V
Permitted residual ripple max.	5 %	5 %
No-load current (I ₀)	≤ 40 mA	≤ 40 mA
Output current active surface free	≥ 20 mA	≤ 4 mA
Output current active surface covered	≤ 4 mA	≥ 20 mA
Load resistor (R _L)	0...600 Ohm	0...600 Ohm
Permitted ambient temperature	0...+70 °C	0...+70 °C
LED-display	Yellow / green	Yellow / green
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 67*	IP 67*
Norm	EN 60947-5-2, EN 60947-5-7**	EN 60947-5-2, EN 60947-5-7**
Connection	2 m, PUR, 4 x 0.14 mm ²	2 m, PUR, 4 x 0.14 mm ²
Housing material	Stainless steel VA No. 1.4305 / AISI 303	Stainless steel VA No. 1.4305 / AISI 303
Active surface	PTFE (FDA 21 CFR 177.1550)	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO	PA / PPO
Accessories (delivered with the sensor)	2 nuts M 12 x 1	

* With sealed potentiometer screw

** Where applicable



Made in Germany

All specifications are subject to change without notice. (14.01.2020)



Capacitive Sensor Series 80 - PNP

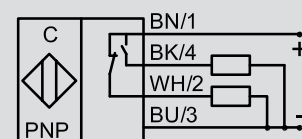
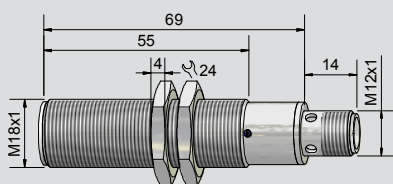
Housing M 18 x 1

- Capacitive sensor for level and position control
- Housing material: Stainless steel VA No. 1.4305 / AISI 303
- Sensing distance 0.5...10 mm adjustable
- With flange connector M 12 x 1



Technical data	Flush mountable
Operating distance S_n	5 mm
Operating distance min. / max. adjustable	0.5...10 mm
Electrical version	4-pin DC
Output function	Antivalent
Type PNP	KAS-80-A13-A-M18-PTFE/VAb-Y5-1-HP
Art.-No.	801 981
Operating voltage (U_B)	10...35 V DC
Voltage drop max. (U_d)	≤ 2,0 V
Permitted residual ripple max.	10 %
Operating current (I_a)	2 x 0...250 mA
No-load current (I_o)	Typ. 15 mA
Frequency of operating cycles max.	300 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection	Flange connector M 12 x 1 (A-coded)
Housing material	Stainless steel VA No. 1.4305 / AISI 303
Active surface	PTFE (FDA 21 CFR 177.1550)
Media optimized	Yes
Accessories (delivered with the sensor)	2 nuts M 18 x 1
For matching connectors please see our selection of accessories.	

All specifications are subject to change without notice. (14.01.2020)



* With sealed potentiometer screw

Made in Germany



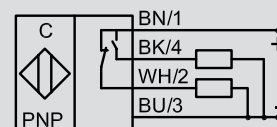
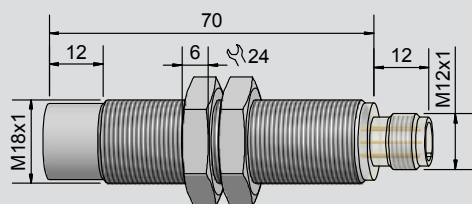
Capacitive Sensors Series 80 - PNP

Housing M 18 x 1

- Capacitive sensor for level and position control
- Housing material: PA / PPO
- Sensing distance 1...10 mm adjustable
- With flange connector M 12 x 1



Technical data	Non-flush mountable
Operating distance S_n	8 mm
Operating distance min. / max. adjustable	1...10 mm
Electrical version	4-pin DC
Output function	Antivalent
Type PNP	KAS-80-A23-A-M18-PPO-Y3-1-NL
Art.-No.	KA 0445
Operating voltage (U_B)	12...30 V DC
Voltage drop max. (U_g)	≤ 2.0 V
Permitted residual ripple max.	10 %
Operating current (I_e)	2 x 0...200 mA
No-load current (I_o)	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection	Flange connector M 12 x 1 (A-coded)
Housing material	PA / PPO
Active surface	PA / PPO
Accessories (delivered with the sensor)	2 nuts M 18 x 1
For matching connectors please see our selection of accessories.	



* With sealed potentiometer screw

Made in Germany



Capacitive Sensors

Series 80 - PNP

Housing M 30 x 1.5

- Housing material: PA / PPO
- Sensing distance 2...20 mm adjustable
II 3D IP67 T101°C X with manufacturer certificate for zone 22

With manufacturer certificate

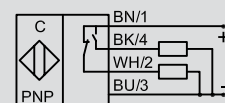
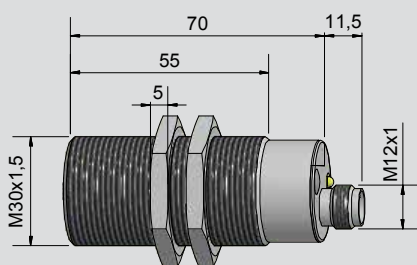
for use in zone 22 (dust)

II 3D Ex mc IIIC T101°C Dc IP67 X



Technical data	Flush mountable
Operating distance S_n	10 mm
Operating distance min. / max. adjustable	2...20 mm
Electrical version	4-wire DC
Output	Antivalent (NO + NC)
Type NPN	
Art.-No.	
Connection diagram No.	
Type PNP	KAS-80-A14-A-K-Y3-NL-3D
Art.-No.	KA 1040
Connection diagram No.	6
Operating voltage (U_B)	12...30 V DC
Voltage drop max. (U_d)	≤ 2.0 V
Permitted residual ripple max.	5 %
Operating current (I_o)	2 x 0...200 mA
No-load current (I_o)	< 15 mA
Frequency of operating cycles max.	150 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60947-5-2
Connection	Connector M 12 x 1
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO

All specifications are subject to change without notice. (14.01.2020)



Made in Germany



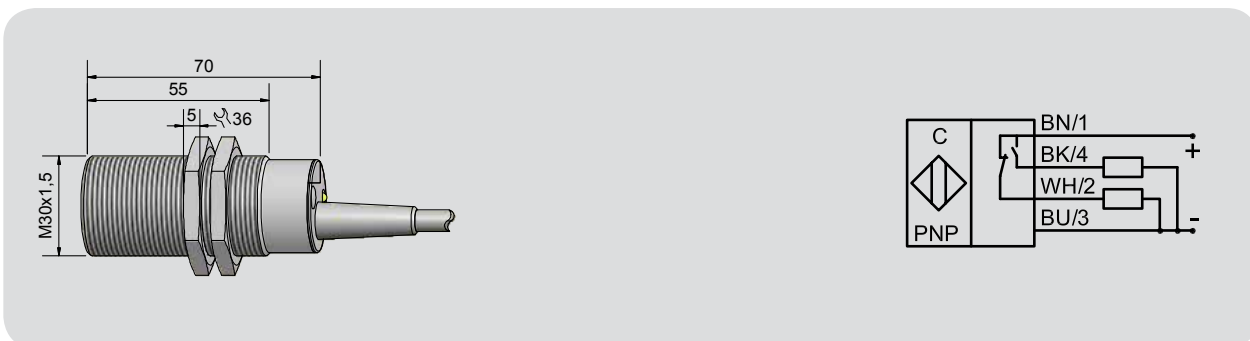
Capacitive Sensors Series 80 - PNP

Housing M 30 x 1.5

- Capacitive sensor for level and position control
- Housing material: PA / PPO
- Sensing distance 2...20 mm adjustable



Technical data	Flush mountable
Operating distance S_n	10 mm
Operating distance min. / max. adjustable	2...20 mm
Electrical version	4-wire DC
Output function	Antivalent
Type PNP	KAS-80-A14-A-M30-PPO-Z02-1-NL
Art.-No.	KA 0554
Operating voltage (U_B)	12...30 V DC
Voltage drop max. (U_g)	≤ 2.0 V
Permitted residual ripple max.	5 %
Operating current (I_e)	2 x 0...200 mA
No-load current (I_o)	Typ. 15 mA
Frequency of operating cycles max.	150 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 4 x 0.5 mm ²
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO
Accessories (delivered with the sensor)	2 nuts M 30 x 1.5



* With sealed potentiometer screw

Made in Germany

All specifications are subject to change without notice. (14.01.2020)



Capacitive Sensors Series 80 - PNP - StEx- ATEX

Housing M 30 x 1.5

- Housing material: Stainless steel VA No. 1.4305 / AISI 303
- For use in areas with the risk of dust explosion, zone 20
- For use in areas with the risk of gas explosion, zone 1
- Sensing distance 3...25 mm adjustable

DMT 01 ATEX E 157	IECEX BVS 07.0015
II 2 G Ex mb IIC T4 Gb	Ex mb IIC T4 Gb
II 1/2 D Ex ta/tb IIIC T101°C Da/Db	Ex ta/tb IIIC T101°C Da/Db



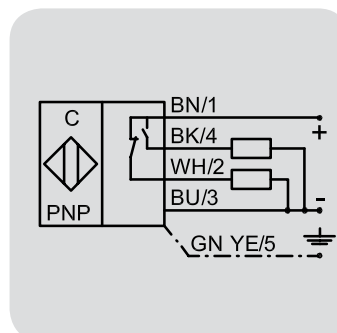
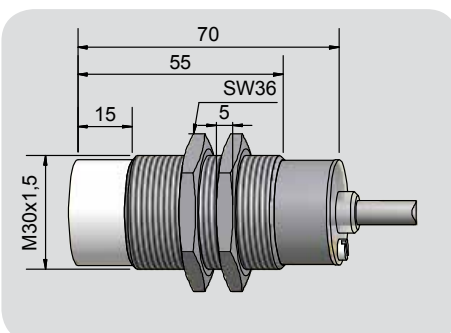
Technical data	Non-flush mountable
Operating distance S_n	15 mm
Operating distance min. / max. adjustable	3...25 mm
Electrical version	4-wire DC
Output function	Antivalent
Type PNP current	KAS-80-A24-A-M30-PTFE/Vab-Z02-1-HP-2G-1/2D
Type PNP	KAS-80-A24-A-StEx
Art.-No.	KA 0399
Operating voltage (U_b)	10...30 V DC
Voltage drop max. (U_d)	≤ 2.0 V
Permitted residual ripple max.	5 %
Operating current (I_o)	2 x 0...150 mA
No-load current (I_o)	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-20...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	3 m, PVC, 5 x 0.34 mm ²
Housing material	VA No. 1.4305 / AISI 303
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)
Media optimized	Yes
Accessories (is delivered with the unit)	2 nuts M 30

This sensor is supplied with a pre-adjusted sensing distance of S_n 13 mm (norm target).

The potentiometer screw is sealed.

All specifications are subject to change without notice. (14.01.2020)

* With sealed potentiometer screw



Made in Germany

Capacitive Sensors Series 80 - PNP - StEx - ATEX



Housing M 30 x 1.5

- For use in areas with the risk of dust explosion, zone 20
- Sensing distance 3...25 mm adjustable
- With flange connector M 12 x 1, 5-pin incl. protective wire pin

DMT 01 ATEX E 157

IECEX BVS 07.0015

Ex II 1/2 D Ex ta/tb IIIC T101°C Da/Db

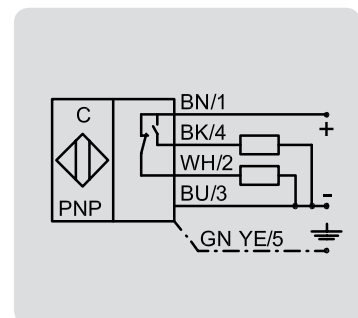
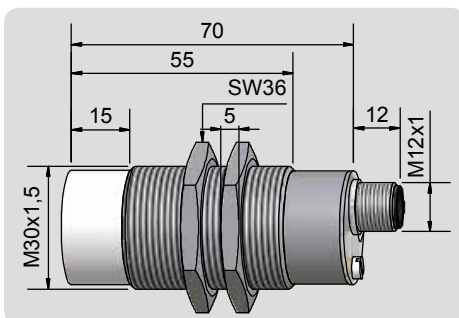
Ex ta/tb IIIC T101°C Da/Db



Technical data

Non-flush mountable

Operating distance S_n	13 mm
Operating distance min. / max. adjustable	3...25 mm
Electrical version	4-pin DC
Output function	Antivalent
Type PNP current	KAS-80-A24-A-M30-PTFE/Vab-Y10-1-E-HP-1/2D
Type PNP	KAS-80-A24-A-Y10-StEx
Art.-No.	KA 1257
Operating voltage (U_b)	10...30 V DC
Voltage drop max. (U_d)	≤ 2.0 V
Permitted residual ripple max.	5 %
Operating current (I_b)	2 x 0...150 mA
No-load current (I_o)	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-20...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection	Flange connector M 12 x 1 (A-coded)
Housing material	VA No. 1.4305 / AISI 303
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)
Media optimized	Yes
Accessories (is delivered with the unit)	2 nuts M 30, Protective clip
For matching connectors please see our selection of accessories.	



Made in Germany



Capacitive Sensors Series 80 - PNP - StEx - ATEX

Housing M 30 x 1.5

- For use in areas with the risk of dust explosion, zone 20
- Sensing distance 3...25 mm adjustable
- With flange connector M 12 x 1, 5-pin incl. protective wire pin

DMT 01 ATEX E 157

IECEx BVS 07.0015

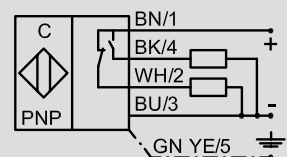
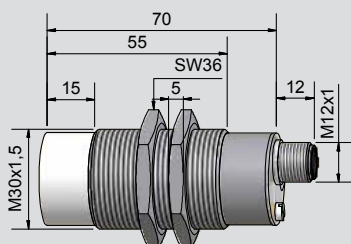
Ex II 1/2 D Ex ta/tb IIIC T101°C Da/Db

Ex ta/tb IIIC T101°C Da/Db



Technical data	Non-flush mountable
Operating distance S_n	15 mm
Operating distance min. / max. adjustable	3...25 mm
Electrical version	4-pin DC
Output function	Antivalent
Type PNP current	KAS-80-A24-A-M30-PTFE/Vab-Y10-1-HP-1/2D
Type PNP	KAS-80-A24-A-Y10-StEx
Art.-No.	KA 0864
Operating voltage (U_B)	10...30 V DC
Voltage drop max. (U_d)	≤ 2.0 V
Permitted residual ripple max.	5 %
Operating current (I_a)	2 x 0...150 mA
No-load current (I_o)	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-20...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection	Flange connector M 12 x 1 (A-coded)
Housing material	VA No. 1.4305 / AISI 303
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)
Media optimized	Yes
Accessories (delivered with the sensor)	2 pieces nuts M 30 x 1.5, Protective clip
Accessories (not delivered with the sensor):	For matching connectors please see our selection of accessories.

* With sealed potentiometer screw



Made in Germany



Capacitive Sensors - S26 Series 80 - PNP

Process connection: G 1/2"

- Housing material: PEEK
- For use in areas with the risk of dust explosion, zone 20
- For use in areas with the risk of gas explosion, zone 1
- SIP / CIP 121 °C
- Special version with flange. Sealing can be made with a gasket or PTFE-tape (not delivered with the sensor)

DMT 01 ATEX E 157

IECEX BVS 07.0015

Ex II 2 G Ex mb IIC T4 Gb

Ex mb IIC T4 Gb

Ex II 1/2 D Ex ta/tb IIIC T101°C Da/Db

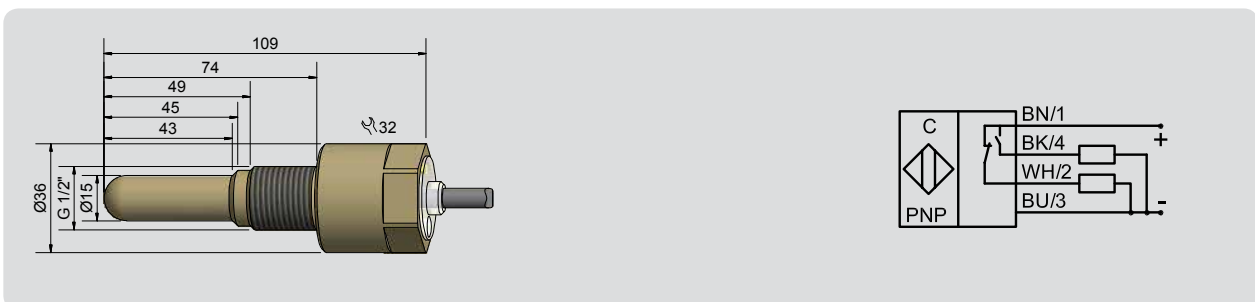
Ex ta/tb IIIC T101°C Da/Db



Technical data	Non-flush mountable
Level sensor, in contact with the product	Medium dependent adjustable
Operating distance min. / max. adjustable	0...10 mm
Electrical version	4-wire DC
Output function	Antivalent
Type PNP current	KAS-80-26/109-A-G1/2-PEEK-Z02-1-HP-2G-1/2D
Type PNP	KAS-80-26-A-K-G1/2"-PEEK-StEx
Art.-No.	KA 1426
Operating voltage (U _B)	10...30 V DC
Voltage drop max. (U _o)	≤ 2.0 V
Permitted residual ripple max.	10 %
Operating current (I _o)	2 x 0...150 mA
No-load current (I _o)	Typ. 15 mA
Frequency of operating cycles max.	2 Hz
Permitted ambient temperature	-25...+70 °C / CIP 121° C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 4 x 0.5 mm ²
Housing material	PEEK (FDA 21 CFR 177.2415)
Active surface	PEEK (FDA 21 CFR 177.2415)
Lid	PC (FDA 21 CFR 177.1580)
Media optimized	Yes
Accessories (not delivered with the sensor): For varivent adapter, triclamp adapter, welding socket and matching connectors please see our selection of accessories.	

Capacitive Sensors S26 with hemispherical active surface for level control of products with a dielectric constant ϵ_r from 1,1. Products can be:

- Bulk material, like plastic granules, powder, cereals, etc.
- Liquids, like water, juice, wine, oil, chemicals or pharmaceutical solutions and much more.
- Pastes in the food, pharmaceutical and cosmetics industry



* With sealed potentiometer screw

Made in Germany



Capacitive Sensors S26 Series 80 - PNP - StEx - ATEX

Type of construction M 30 x 1.5

- For use in areas with the risk of dust explosion, zone 20
- For use in areas with the risk of gas explosion, zone 1
- Housing material: PTFE

DMT 01 ATEX E 157	IECEX BVS 07.0015
Ex II 2 G Ex mb IIC T4 Gb	Ex mb IIC T4 Gb
Ex II 1/2 D Ex ta/tb IIIC T101°C Da/Db	Ex ta/tb IIIC T101°C Da/Db

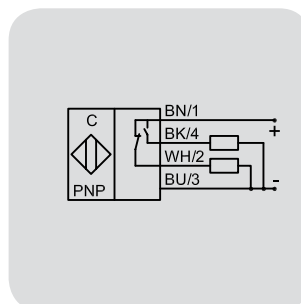
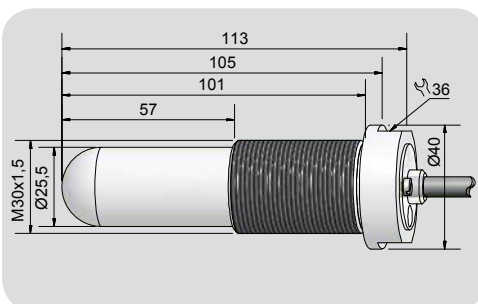


Technical data	Non-flush mountable
Level sensor, in contact with the product	Medium dependent adjustable
Operating distance min. / max. adjustable	0...20 mm
Electrical version	4-wire DC
Output function	Antivalent
Type PNP current	KAS-80-26/113-A-M30-PTFE-Z02-1-HP-2G-1/2D
Type PNP	KAS-80-26-A-K-M30-PTFE-StEx
Art.-No.	KA 1365
Operating voltage (U _B)	10...30 V DC
Voltage drop max. (U _d)	≤ 2.0 V
Permitted residual ripple max.	10 %
Operating current (I _e)	2 x 0...150 mA
No-load current (I ₀)	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-20...+90 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 4 x 0,5 mm ²
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)
Media optimized	Yes
Accessories (not delivered with the sensor): For varivent adapter, triclamp adapter, welding socket and matching connectors please see our selection of accessories.	

Capacitive Sensors S26 with hemispherical active surface for level control of products with a dielectric constant ϵ_r from 1,1. Products can be:

- Bulk material, like plastic granules, powder, cereals, etc.
- Liquids, like water, juice, wine, oil, chemicals or pharmaceutical solutions and much more.
- Pastes in the food processing industry, liquid glue, or resins, etc.

* With sealed potentiometer screw



Made in Germany



Capacitive Sensors S26 Series 80 - PNP - StEx - ATEX

Type of construction M 30 x 1.5

- For use in areas with the risk of dust explosion, zone 20
- For use in areas with the risk of gas explosion, zone 1
- Housing material: PTFE

DMT 01 ATEX E 157

IECEX BVS 07.0015

Ex II 2 G Ex mb IIC T4 Gb

Ex mb IIC T4 Gb

Ex II 1/2 D Ex ta/tb IIIC T101°C Da/Db

Ex ta/tb IIIC T101°C Da/Db



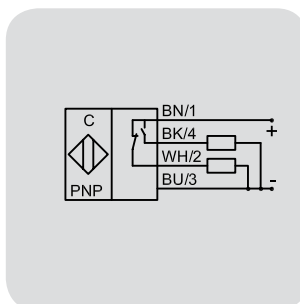
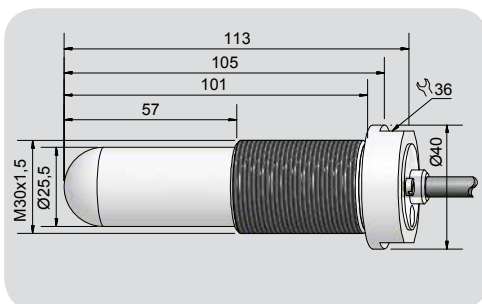
Technical data	Non-flush mountable
Level sensor, in contact with the product	Medium dependent adjustable
Operating distance min. / max. adjustable	0...20 mm
Electrical version	4-wire DC
Output function	Antivalent
Type PNP current	KAS-80-26/113-A-M30-PTFE-Z02-1-HP-2G-1/2D
Type PNP	KAS-80-26-A-K-M30-PTFE-StEx
Art.-No.	KA 1262
Operating voltage (U _B)	10...30 V DC
Voltage drop max. (U _v)	≤ 2.0 V
Permitted residual ripple max.	10 %
Operating current (I _a)	2 x 0...150 mA
No-load current (I ₀)	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-20...+90 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 4 x 0,5 mm ²
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)
Media optimized	Yes

Capacitive Sensors S26 with hemispherical active surface for level control of products with a dielectric constant ϵ_r from 1,1. Products can be:

- Bulk material, like plastic granules, powder, cereals, etc.
- Liquids, like water, juice, wine, oil, chemicals or pharmaceutical solutions and much more.
- Pastes in the food processing industry, liquid glue, or resins, etc.

Accessories (not delivered with the sensor): For varivent adapter, triclamp adapter, welding socket and matching connectors please see our selection of accessories.

* With sealed potentiometer screw



Made in Germany



Capacitive Sensors - S26 Series 80 - PNP - StEx - ATEX

Housing M 30 x 1.5

- For use in areas with the risk of dust explosion, zone 20
- Housing material: PTFE
- Sensing distance 0...20 mm adjustable
- Special version with flange. Sealing can be made with a gasket or PTFE-tape (not supplied with the sensor)
- With flange connector M 12 x 1

DMT 01 ATEX E 157	IECEX BVS 07.0015
Ex II 1/2 D Ex ta/tb IIIC T101°C Da/Db	Ex ta/tb IIIC T101°C Da/Db



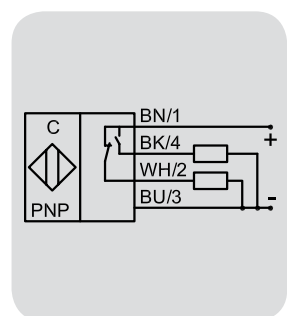
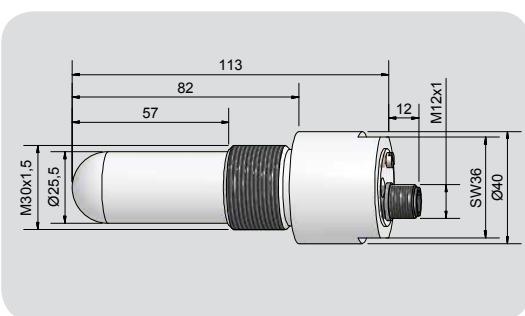
Technical data	Non-flush mountable
Level sensor, in contact with the product	Medium dependent adjustable
Operating distance min. / max. adjustable	0...20 mm
Electrical version	4-wire DC
Output function	Antivalent
Type PNP current	KAS-80-26/113-A-M30-PTFE-Y5-1-HP-1/2D
Type PNP	KAS-80-26-A-K-M30-PTFE-Y5-StEx
Art.-No.	KA 1281
Operating voltage (U _B)	10...30 V DC
Voltage drop max. (U _d)	≤ 2.0 V
Permitted residual ripple max.	10 %
Operating current (I _B)	2 x 0...150 mA
No-load current (I ₀)	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-20...+90 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	Flange connector M 12 x 1 (A-coded)
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)
Media optimized	Yes
Accessories (delivered with the sensor)	Protective clip
Accessories (not delivered with the sensor): For varivent adapter, triclamp adapter, welding socket and matching connectors please see our selection of accessories.	

Capacitive Sensors S26 with hemispherical active surface for level control of products with a dielectric constant ϵ_r from 1,1. Products can be:

- Bulk material, like plastic granules, powder, cereals, etc.
- Liquids, like water, juice, wine, oil, chemicals or pharmaceutical solutions and much more.
- Pastes in the food processing industry, liquid glue, or resins, etc.

All specifications are subject to change without notice. (14.01.2020)

*With sealed potentiometer screw



Made in Germany



Capacitive Sensors

Series 80 - PNP

Housing Ø 50 mm

- Housing material: PA / PPO
- Sensing distance 1...50 mm adjustable
- With flange connector M 12 x 1

With manufacturer certificate

for use in zone 2 (gas)

for use in zone 22 (dust)

Ex II 3G Ex nA IIC T6 Gc X

Ex II 3D Ex mc IIIC T101°C Dc IP67 X

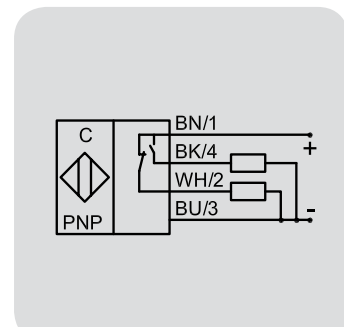
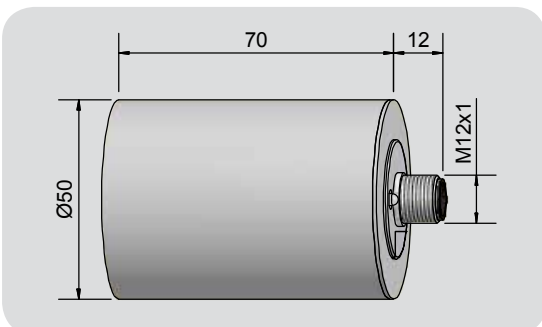


Technical data

Flush mountable

Operating distance S_n	30 mm
Operating distance min. / max. adjustable	1...50 mm
Electrical version	4-pin DC
Output	Antivalent
Type PNP	KAS-80-50-A-D50-PPO-Y5-1-HP-3G-3D
Art.-No.	KA 1163
Operating voltage (U_b)	10...35 V DC
Operating current (I_b)	2 x 0...250 mA
Voltage drop max. (U_d)	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current (I_o)	Typ. 15 mA
Frequency of operating cycles max.	100 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection	Flange connector M 12 x 1 (A-coded)
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO
Media optimized	Yes
Accessories (is delivered with the unit)	Protective clip
For matching connectors please see our selection of accessories.	

*With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (14.01.2020)



i-LEVEL Capacitive Filling Level Probe - KFI

Analogue current output 4...20 mA

- Integrated evaluation electronics
- Easy Teach by wire
- Housing material: PTFE, Ø 16 mm



Technical data

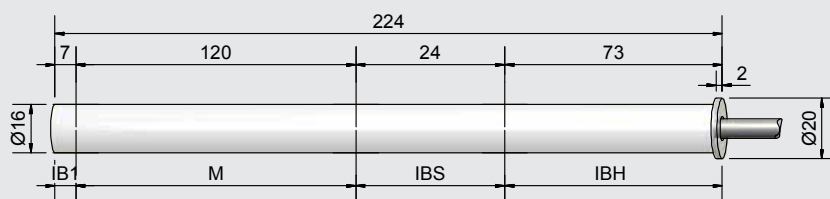
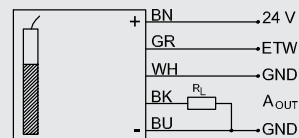
Active zones [mm]	120 mm
Electrical version	4-wire DC
Output function	Analogue
Type	KFI-1-224-120-IL4-PTFE-ETW
Art.-No.	KI 0091
Operating voltage (U _B)	15...30 V DC
Permitted residual ripple max.	5 %
Load resistance (R _L)	≤ 400 Ω
Power consumption (outputs no-load)	0,9 W
Analogue output	4...20 mA
Permitted ambient temperature	-25...+70 °C
LED-Display	Green
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60947-5-2*
Connection cable	12 m, PVC, 5 x 0.34 mm ²
Housing material	PTFE (FDA 21 CFR 177.1550)
Active zone	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)

Accessories for mounting (is not delivered with the probe) please see our selection of accessories.

*Where applicable

EasyTeach chart:

- LED green / Adjustment function
- Adjustment Min.
 - Adjustment Max.
 - Factory set
 - Test



Other housing materials for the active zone (probe), like PE, GFK, PVDF or PEEK on request.

Made in Germany



LEVEL Capacitive Filling Level Probe - KFI

Analogue current output 4...20 mA

- Integrated evaluation electronics
- Easy Teach by wire
- Housing material: GFK, Ø 16 mm
- Connection head and process connection stainless steel VA no. 1.4404 / AISI 316L
- Process connection G1"
- Factory preset max. Value



Technical data

Active zones [M]	400 mm
Output function	Analogue
Type	KFI-1-505-400-GFK/VAb-D16-G1-IL4-ETW-E-Y10
Art.-No.	KI 0148
Operating voltage (U _b)	15...30 V DC
Permitted residual ripple max.	5 %
Load resistance (R _L)	≤ 200 Ω
Power consumption (outputs no-load)	0,9 W
Analogue output	4...20 mA
Permitted ambient temperature	-25...+70 °C
LED-Display	Green
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60947-5-2*
Connection	Flange connector M 12 x 1 (A-coded) (5-pin)
Housing material	VA No. 1.4404 / AISI 316L
Active zone	GFK
Lid	PC (FDA 21 CFR 177.1580)

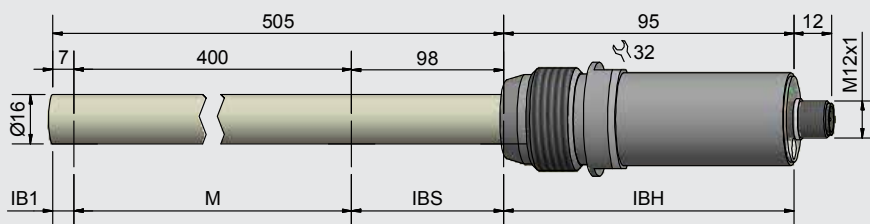
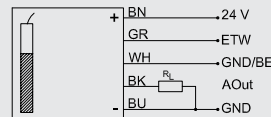
For matching connectors please see our selection of accessories.

*Where applicable

EasyTeach chart:

LED green / Adjustment function

- Adjustment Min. (5 s)
- Adjustment Max. (10 s)
- Factory set (15 s)
- Test (>20 s)



Other housing materials for the active zone (probe), like PE, PTFE, PVDF or PEEK on request.

Made in Germany

All specifications are subject to change without notice. (14.01.2020)

Customer proximity guaranteed!

Rechner Sensors has daughter and sister companies in China, Great Britain, Italy, Canada, South Korea and in the U.S..

Furthermore we have representative offices in over 50 countries. For the addresses of our sales partners please visit our website. You will find the addresses under the category contact.

CANADA

Rechner Automation Inc
348 Bronte St. South - Unit 11
Milton, ON L9T 5B6

Tel. 905 636 0866
Fax. 905 636 0867
contact@rechner.com
www.rechner.com

GREAT BRITAIN

Rechner (UK) Limited
Unit 6, The Old Mill
61 Reading Road
Pangbourne, Berks, RG8 7HY

Tel. +44 118 976 6450
Fax. +44 118 976 6451
info@rechner-sensors.co.uk
www.rechner-sensors.co.uk

ITALY

Rechner Italia SRL
Via Isarco 3
39100 Bolzano (BZ)
Office:
Via Dell'Arcoveggio 49/5
40129 Bologna
Tel. +39 051 0015498
Fax. +39 051 0015497
vendite@rechneritalia.it
www.rechneritalia.it

PEOPLE'S REPUBLIC OF CHINA

RECHNER SENSORS SIP CO.LTD.
Building H,
No. 58, Yang Dong Road
Suzhou Industrial Park
Jiangsu Province

Tel. +8651267242858
Fax. +8651267242868
assist@rechner-sensor.cn
www.rechner-sensor.cn

REPUBLIC OF KOREA (SOUTH)

Rechner-Korea Co. Ltd.
A-1408 Ho,
Keumgang Penterium IT Tower,
Hakeuro 282, Dongan-gu
Anyang City, Gyunggi-do, Seoul

Tel. +82 31 422 8331
Fax. +82 31 423 83371
sensor@rechner.co.kr
www.rechner.co.kr

UNITED STATES OF AMERICA

Rechner Electronics Ind. Inc.
6311 Inducon Corporate Drive,
Suite 5
Sanborn, NY. 14132

Tel. 800 544 4106
Fax. 905 636 0867
contact@rechner.com
www.rechner.com

All specifications are subject to change without notice. (14.01.2020)



RECHNER

INDUSTRIE-ELEKTRONIK GMBH

Gaußstraße 6-10 • 68623 Lampertheim • Germany

T: +49 6206 5007-0 • F: +49 6206 5007-36 • F Intl. +49 6206 5007-20

www.rechner-sensors.com • E-mail: info@rechner-sensors.de