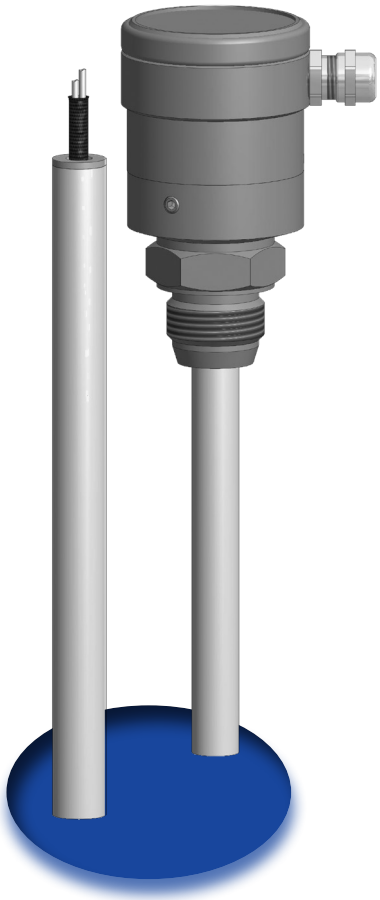
GENERALDESCRIPTION

TRUE LεVεL®

Level control systems for analogue measurements

The capacitive measurements systems of the TRUE LεVεL series are designed for analogue measurement. The system comprises:

- **Filling level probe KFS-1-...**
- **Evaluation unit KFA-1-...**



Automatic compensation for changes in dielectric constant

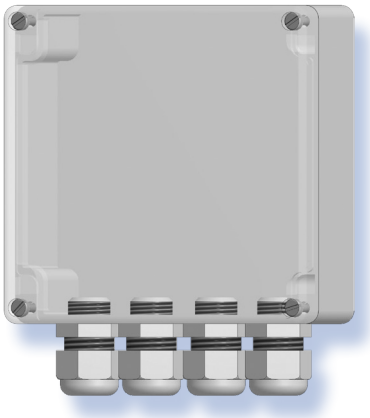
The analogue level measurement automatically makes a compensation for the changes in the dielectric constant of the filling material, which is very advantageous for applications with changing products. For the DC-compensation (DC = dielectric constant) a reference measurement is made. For that reason a reference area is in the tip of the probe.

Probe length up to 2000 mm

The probes. **KFS-1-.../** are available from **400 mm** up to **2000 mm** in length. The position and the length of the measuring area are user-definable within the possible effective range and therefore it can be determined for optimising each application.

The available evaluation units are:

● Analogue output	KFA-1-...-UL-Y70	=	Voltage 0...10 V DC
● Analogue output	KFA-1-...-IL4-Y70	=	Current 4...20 mA
● Analogue output	KFA-1-...-FL-Y70	=	Frequency 0...10 kHz



Adjustment of the measurement with empty container

The adjustment of the measurement can be made in the empty-condition. The effective direction of the output signals and LED display can be defined by means of DIP switches. With an adjustable time delay (damper) slop motions can be suppressed.

Additionally a relay output is available, that is related to the reference area. This relay output can be used to prevent a total emptying of the container.

GENERAL DESCRIPTION

TRUE LEVEL®

Probes with process connection:

The analogue rod-probes series is completed with probes with process-connection with different adaptation possibilities:

- **Process connection G1“**
- **Triclamp**
- **Varivent**
- **And many more**

For further information, please see the accessories chapter.

For the possible model variations please see the type code.

Advantages for TRUE LEVEL®

- Filling level measurements in containers and tubes up to approximately 5 m in diameter
- For liquids and bulk materials $\varepsilon_r \geq 1{,}2$
- Due to its large measuring capacity it is also suitable for non-homogenous media
- With suitable mounting, virtually independent of the discharge cone.
- Probe applicable in an ambient temperature range of –70 °C up to + 250 °C
- Insensitive to static discharge
- Because of automatic compensation of the dielectric constants useable for different materials without re-adjustment
- complete adjustment in the empty-condition

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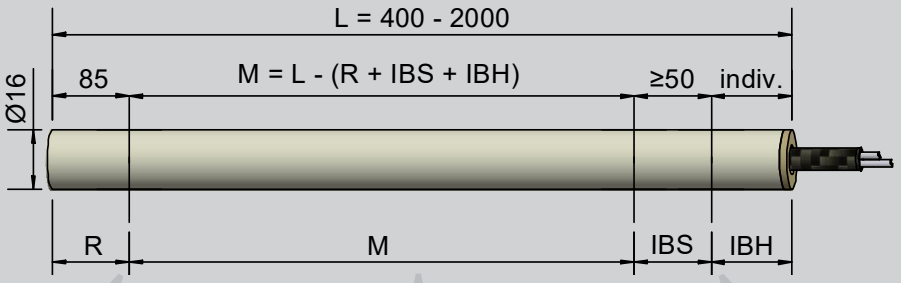
MOUNTING

TRUE LEVEL®



The **analogue probe** consists of a **reference system (R)** at the top of the probe to determine the existing material characteristics. This reference range stretches over 85 mm independent of type.

The reference system (R) does not require a constant cross section of the container. Thus it can project into the cone of the container.

Then follows the **analogue measuring range (M).** It is customer specified, but with regard to the total length (L = max. 2000 mm)

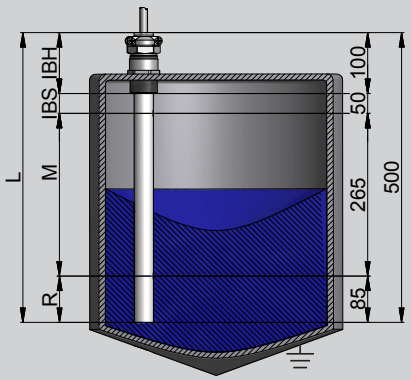
The analogue measuring range of the probe must be mounted in a range of the container without change in diameter of the cross section in order to guarantee the linearity of the output signal.

Changes in cross section lead to non-linearity, due to conical sections for example.

The **inactive range (IBH)**, a minimum of 50 mm, serves to mount the probe.

The non-active range (IBS) from the measuring range to the top of the container (if metal) should be a minimum of 50 mm in order to prevent non-linearity.

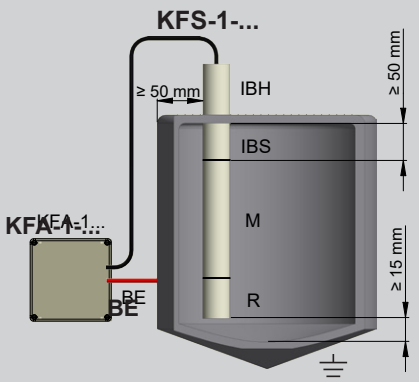
With use of a metallic holder the minimum free area between the end of the measuring range and the metallic holder of min. 50 mm should be considered.



Example for a probe with PTFE body and a total length of L = 500 mm with a holder ((Art. Nr. 194 000) IBH = 100 mm. For IBS the min. distance of 50 mm has been applied. This results in an available measuring range M = 265 mm. The calculation is as follows:

M = L - (IBH + IBS + R)
M = 500 - (100 + 50 + 85)
M = 265

⟶ KFS-1-85-500-265-PTFE-D16-X02-Y75



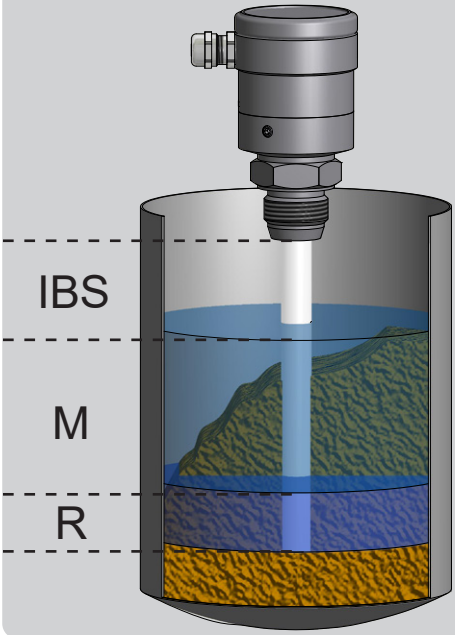
The probe can be mounted centrically or eccentrically. For a measurement independent of the filling cone, we recommend that the probe be mounted at a ¼ of the diameter. The minimum distance between the upper switching point and the conductive lid of the container is 50 mm.

Connect the BE container earth over the shortest distance!

APPLICATION EXAMPLE

TRUE LEVEL®

We use for these analogue level systems our patented three electrode measuring principle. With this measuring principle the container is part of the measurement. The container must be metal or a metal foil has to be fixed on the container (foil length ≥ probe length). The resulting large measuring volume is the reason why material depositions on the probe surface are irrelevant for the measurement.



On the left you see a schematic drawing of the measuring ranges of a filling level probe with two measuring points. You see, that the probe measures a range that is like a disc and not just a small area around the probe.

At the tip of the probe there is the reference range, which measures the measuring conditions at the application. This is important for the automatic compensation of changes in the dielectric constant of the material to be detected.

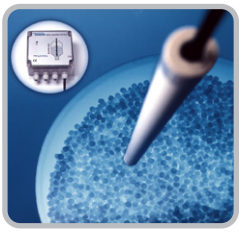
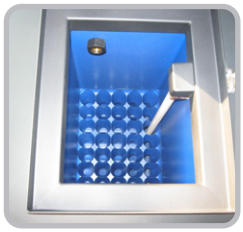
The reference range of the probe can be placed within the cone of a container.

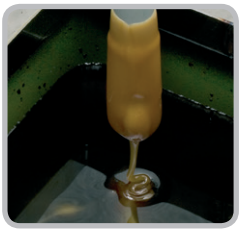
For the measuring range the container diameter must be the same over the whole measuring range. This is important to guarantee the linearity of the measurement.

These analogue level systems are used for a large number of different applications. They lindicate the actual level control of bulk material or liquids. They are applied in various industries, so for instance:

FOOD INDUSTRY, CHEMICAL INDUSTRY, PHARMACEUTICAL INDUSTRY, IN PACKAGING INDUSTRY, AUTOMOMOTIVE TECHNOLOGY AND MUCH MORE.

They measure the level in glue containers or in the correspondent storage tanks. They are used for level control in dosing systems which for example dispense glue or ink or fill-in products in packaging units.

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