

**smartLEVEL Sensors of the SK1-FSA series** have been pre-adjusted for most applications by the factory.

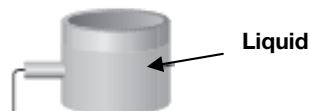
The sensors are suitable to detect water-based liquids through glass or plastic walls without further adjustment. Plastic and glass walls are automatically tuned out (approx. 0.5mm to 10mm thickness) and the smartLEVEL technology compensates automatically within broad limits for foaming, filming (e.g. condensation) and material build-ups inside and outside of the tank wall.

**CAUTION!**

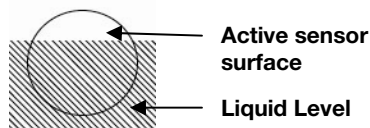
smartLEVEL sensors are not suitable to detect non-conductive liquids and solids like oil or plastic pellets.

**SWITCHING point**

In order to determine if the factory preset is suitable for a particular application, it is necessary to determine if the switching point (percentage coverage of the sensing area) falls within certain limits.



Therefore, install the sensor flush (without an air gap) to the wall. Then monitor the rising and lowering level. If the trigger point is within the shaded area, a proper sensor function is assured.



If the switching point is outside the shaded area (70% - 50% coverage), adjustment is necessary.

**SPECIAL applications**

smartLEVEL sensors provide a reliable level detection in applications where standard sensors cannot.

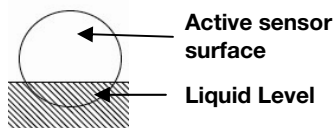
Please pay particular attention to the following applications:

- a) Tank wall thickness >10 mm.
- b) Liquids with small, dielectric, constant and/or low conductivity, e.g. fuel, alcohol, strongly de-ionized water.
- c) High conductive and/or viscous liquids adhering to the wall or foam

formation, e.g. blood, cleaning detergent.

If the smartLEVEL sensor is not within the optimal switching point range as described earlier for applications a) and b), the sensor has to be adjusted as follows:

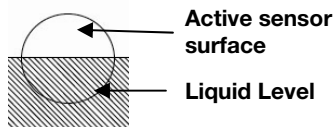
-Fill the tank until the liquid level covers approx. 30% to 40% of the active sensor surface in diameter measured from the lower edge.



-Turn the potentiometer slowly clockwise until the sensor switches ON<sup>2</sup>).

For applications described in c), it is possible that the sensor will no longer distinguish between residues of a high conductive medium adhering to the wall and the true level, i.e. the device is permanently in the “ON” state although the level has fallen far below the lower edge of the sensing surface.

In this case, proceed as follows:



1st option:

-Fill the tank until the level covers approx. 50% - 70% of the sensing surface.

-Turn the potentiometer slowly counterclockwise until the sensor switches OFF<sup>1</sup>).

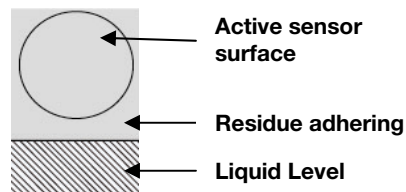
-Turn the potentiometer slowly clockwise until the sensor switches ON again.

Now the sensitivity has been reduced to a point that the sensor just barely detects the true level. It has to be checked whether the sensor switches ON and OFF between the medium in full state and residues/foam in empty state.

2nd option:

- Vary the liquid level, until the lower edge of the sensing surface is located approx. 10mm above the liquid level and in the middle of the residue adhering to the wall.

-Turn the potentiometer slowly counterclockwise until the sensor switches OFF<sup>1</sup>).



The sensitivity has been reduced to the point that the residues/foam is no longer detected. Verify whether the sensor distinguishes between “full” and “empty” with and without residues/foam.

**IMMERSION applications**

Typically, immersion applications do not need any adjustments. In the case of strongly adhering liquid or foam formation, it may be necessary to perform an adjustment:

- The sensor is installed with its active sensing area non-flush to the tank, so that the sensor’s head can be fully immersed in the liquid.

-Cover the sensor head completely with the product.



-Turn the potentiometer counterclockwise until the sensor switches OFF<sup>1</sup>).

-Turn the potentiometer slowly clockwise again until the sensor just barely switches ON<sup>2</sup>).

-At this switching point, apply an additional 1/4 clockwise turn (90°).

**FACTORY setting**

To restore the factory setting, the sensor needs be set to a sensing distance of 4 mm

(For sensors SK1-FSA-M30 series) measured on a grounded metal plate (thickness: 1 mm, length: >30mm, width: >30mm). An alternative way is to measure the 4mm sensing distance by using your hand.

1) Output state indicator LED “OFF” with N.O. output, LED “ON” with N.C. output.

2) Output state indicator LED “ON” with N.O. output, LED “OFF” with N.C. output