

KAK/KALK Füllstandgrenzschalter

for conductive filling level supervision
in electrically conductive liquids

Technical information TI04.24



Application

- Detects up to two limit values
- For filling level resp. limit value detection in liquid container
- As overflow protection in container
- As dry run protection for pumps in pipelines
- For two-position-control in plants
- Wide application range

Main features

- For process temperatures from -40 °C to +100 °C
- For process pressures from -1 bar to +10 bar
- Materials for aggressive filling liquids
- Measuring range adjustable up to 200k Ohm resp. 5µS/cm
- Wide range power supply 20 to 253V AC/DC / Relay output
- DC supply voltage 24V DC / PNP switching output



Description

The filling level limit switch KAK / KLK is used, to evaluate one or two filling levels resp. limit levels in electrically conductive liquids with a conductivity of minimum 5µS/cm resp. a resistance of maximum 200k Ohm.

The device is also useable as overflow protection in container with liquids, for the realization of a two-position-control e.g. for pump control or also as dry run protection.

The conductivity also of aggressive filling liquids can be detected, at process temperatures from -40 °C to +100 °C, at pressures from -1 bar to +10 bar.

The version KAK is the standard type for general applications, whereas the version KLK is especially conceived for food applications.

The following variants are available:

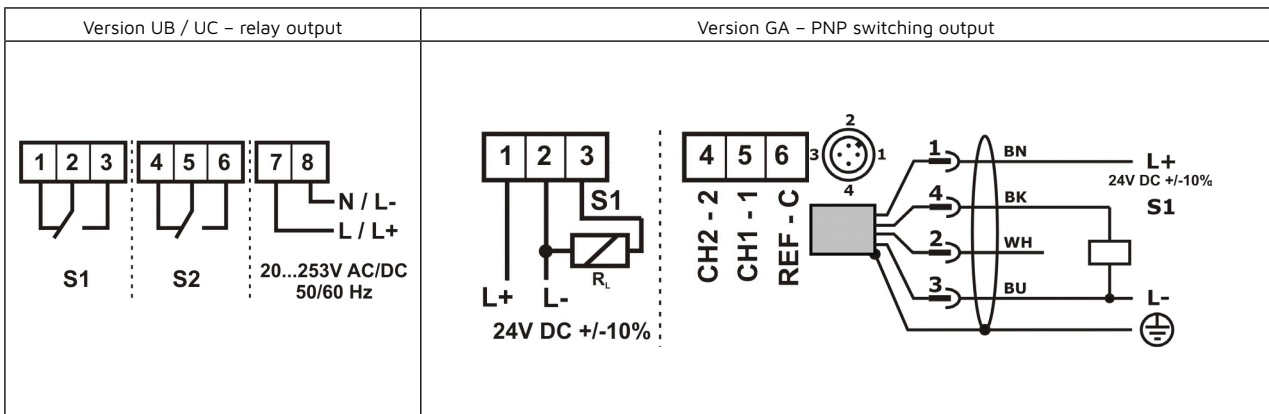
- Relay output version with wide range power supply from 20...253VAC/DC, for two-channel or ds mode with two relay changeover contacts, resp.
- Relay output version with wide range power supply from 20...253VAC/DC, for one-channel or ds mode with two relay changeover contacts, resp.
- Switching output version with direct voltage power supply 24VDC +/-10%, for one-channel or ds mode with one PNP switching output.



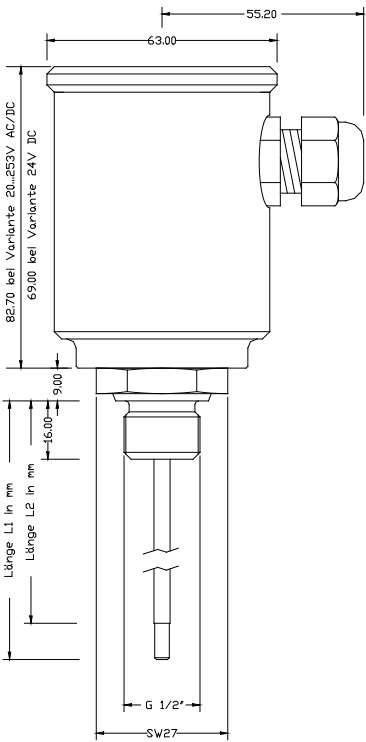
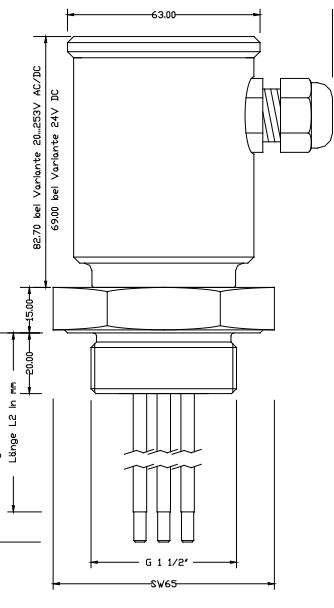
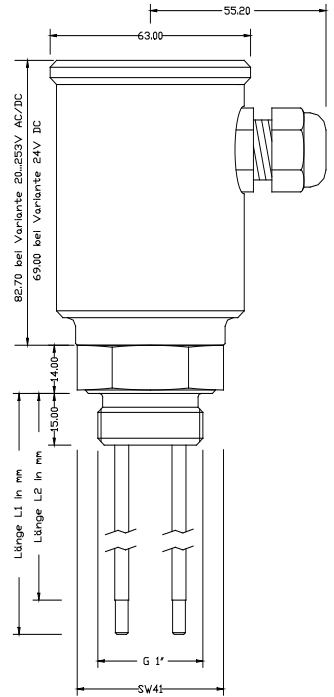
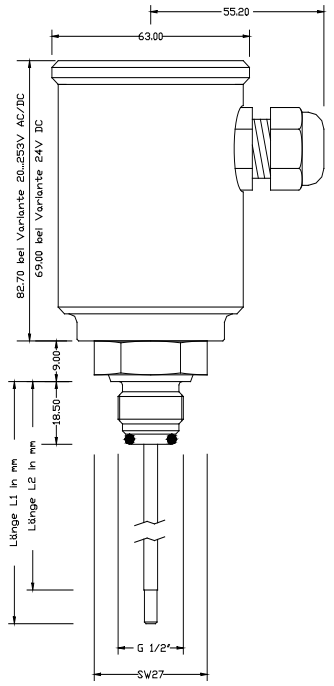
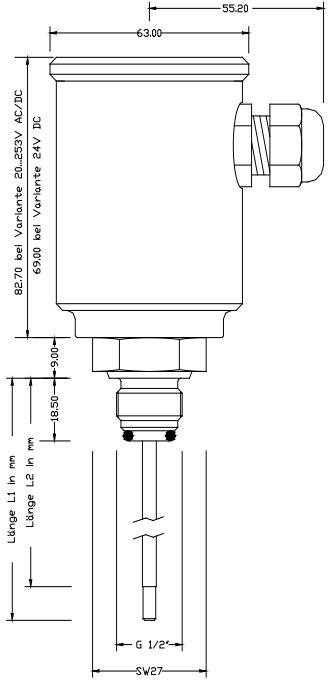
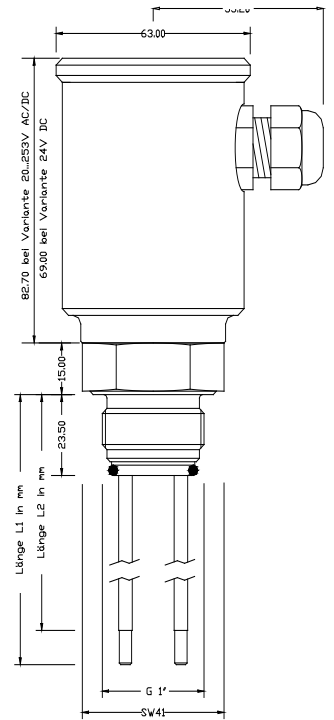
Technical Data

Process temperature	- 40°C ...+100°C
Process pressure	- 1bar ... 10bar
Protection level	IP65 (DIN EN 60529)
Electrode rod	CrNi steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti); Hastelloy C22; Titan
Electrode isolation	KAK: PA / ETFE resp. E-CTFE; KLK: ETFE, FDA listed
Process gasket	KAK: FPM; KLK: EPDM, FDA listed
Process connection	CrNi steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)

Electrical connection



Dimensions (mm)

KAK - __1G12__	KAK - __3G15__	KAK - __2G10__
 <p>82.70 bei Variante 20..253V AC/DC 69.00 bei Variante 24V DC</p> <p>63.00</p> <p>55.20</p> <p>9.00</p> <p>16.00</p> <p>Länge L1 in mm</p> <p>Länge L2 in mm</p> <p>G 1/2"</p> <p>SW27</p>	 <p>82.70 bei Variante 20..253V AC/DC 69.00 bei Variante 24V DC</p> <p>63.00</p> <p>55.20</p> <p>15.00</p> <p>20.00</p> <p>Länge L1 in mm</p> <p>Länge L2 in mm</p> <p>G 1 1/2"</p> <p>SW65</p>	 <p>82.70 bei Variante 20..253V AC/DC 69.00 bei Variante 24V DC</p> <p>63.00</p> <p>55.20</p> <p>14.00</p> <p>15.00</p> <p>Länge L1 in mm</p> <p>Länge L2 in mm</p> <p>G 1"</p> <p>SW41</p>
KLK - __1G12__	KLK - __3G15__	KLK - __2G10__
 <p>82.70 bei Variante 20..253V AC/DC 69.00 bei Variante 24V DC</p> <p>63.00</p> <p>55.20</p> <p>9.00</p> <p>18.50</p> <p>Länge L1 in mm</p> <p>Länge L2 in mm</p> <p>G 1/2"</p> <p>SW27</p>	 <p>82.70 bei Variante 20..253V AC/DC 69.00 bei Variante 24V DC</p> <p>63.00</p> <p>55.20</p> <p>9.00</p> <p>18.50</p> <p>Länge L1 in mm</p> <p>Länge L2 in mm</p> <p>G 1/2"</p> <p>SW27</p>	 <p>82.70 bei Variante 20..253V AC/DC 69.00 bei Variante 24V DC</p> <p>63.00</p> <p>55.20</p> <p>15.00</p> <p>23.50</p> <p>Länge L1 in mm</p> <p>Länge L2 in mm</p> <p>G 1"</p> <p>SW41</p>

Further dimensional drawings can be found in the operating instructions or in the technical information.

Order code

Type

KAK Standard
KLK Food applications

Electrical connection

0 Terminal box
V Plug M12 x 1, A, 4pole; auxiliary power direct voltage 24 V DC

Auxiliary power

G Direct voltage 24 V DC
U Wide range power supply 20...253 V AC/DC

Output

A 1 x PNP switching output; auxiliary power direct voltage 24 V DC
B 1 x relay output; auxiliary power universal voltage 20...253 V AC/DC
C 2 x relay output; auxiliary power universal voltage 20...253 V AC/DC

Type measuring system

1 1-rod; 1x limit value; Reference electrode REF – process connection
2 2- rod; 1x limit value; Reference electrode REF – longest rod
3 3- rod; 2x limit value; Reference electrode REF – longest rod
4 2- rod; 2x limit value; Reference electrode REF – process connection

Process connection material CrNi steel

G12 Thread ISO 228-1 – G ½", 1-rod
G10 Thread ISO 228-1 – G 1", 2-rod
G15 Thread ISO 228-1 – G 1½", 3-rod
D25 Dairy coupling DIN 11851 – DN25, 1-rod; only type KLK
D40 Dairy coupling DIN 11851 – DN40, 2-rod ; only type KLK
D50 Dairy coupling DIN 11851 – DN50, 3-rod ; only type KLK

Material electrode rod

A4 CrNi steel, rod diameter 4 mm
A8 CrNi steel, rod diameter 8 mm
D Hastelloy C22, rod diameter 4 mm
T4 Titan, rod diameter 4 mm
T8 Titan, rod diameter 8 mm
E CrNi steel, tip tantalum 50mm

Material terminal enclosure

D POM
P PP
L PTFE
V CrNi steel

Material electrode isolation

R PA; only type KAK
H4 ETFE (KLK) resp. E-CTFE, rod diameter 4 mm
H8 ETFE (KLK) resp. E-CTFE, rod diameter 8mm

Diameter electrode rod

O 4 mm
W 8 mm

Length L1/L2/L3 electrode rod in mm, max. 2500 mm

KAK / KLK