



KS3

# Liquid Alarm Sensor

## KS3/KS3 EX, KS3 EX PEEK, KS3 EX PEEK SS, KS3 EX SS

for non-conductive and conductive media

### Special Features

- **Reliable detection even of minimal liquid quantities**
- **Can be integrated into M&C universal filters and flow chamber**
- **ATEX certified versions for hazardous zone 1 areas**
- **Rugged aluminium enclosure**
- **Extended operating temperature range from -20 to 50 °C [-4 to 122 °F] for Ex versions**

### Application

The liquid alarm sensor type KS3... is an adequate replacement for the previous KS2... model. The KS3... has a rugged aluminium enclosure. Additionally, the operating temperature range for the KS3 EX versions has been extended from -20 up to 50 °C [-4 to 122 °F] in connection with the renewed Type Examination Certificate.

Liquid alarm sensors are used in gas sample conditioning systems for monitoring gas cooling and condensate drains in order to provide protection for downstream analysis instruments. The monitoring devices KS3/KS3 EX versions reliably signal the penetration of non-conductive (e.g. alcohol) and conductive (e.g. water) liquid in the event of cooling or condensate drains being defective, thus avoiding expensive downtime as well as high repair costs for analysis instruments.

In the event of an alarm, power for the sample gas pump must be switched off or a solenoid valve must be switched idle in the sample conditioning system.

The M&C liquid alarm sensors KS3/KS3 EX versions are designed in such a way that any droplets of liquid in the sample gas are attracted directly to the active sensor surface. Even the smallest liquid droplets will trigger a reliable and rapid alarm.

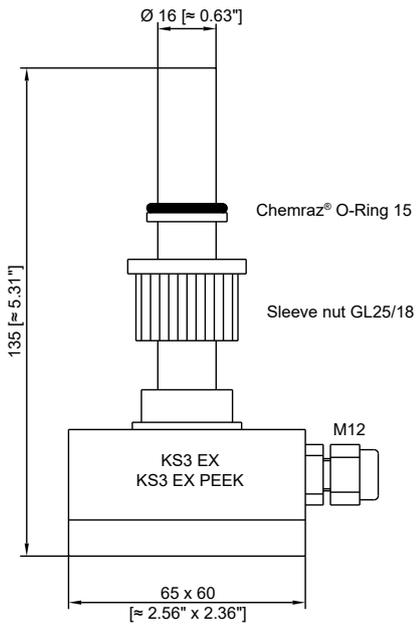
The sensors are mounted with the 16 mm ø stainless steel body in the GL 25 connector of the universal filter F...-D or the condensate vessel TG1 or in the flow chamber LS/KS.

### Description

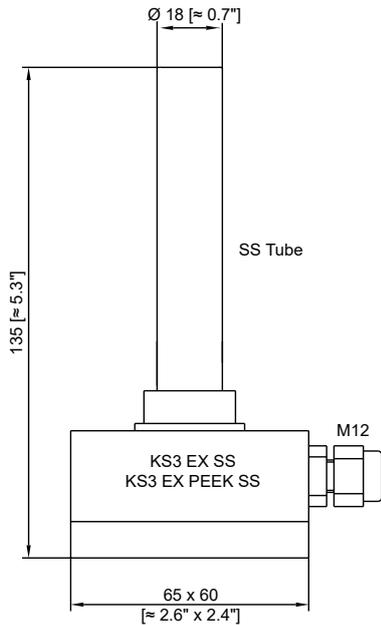
The M&C liquid alarm sensors KS3/KS3 EX versions work on the principle of capacitive measurement and are suitable for non-conductive and conductive media. A pre-amplifier is integrated in the sensor housing and is connected with the necessary external electronic controller via 2- or 3-wire. For KS3, the required electronic controller is available in various versions: FA1.1 or FA1.4 and is described in the separate data sheet "Electronic Controller Series FA®".

The M&C liquid alarm sensors KS3 EX, KS3 EX PEEK, KS3 EX PEEK SS and KS3 EX SS for use in hazardous areas and media should only be used in connection with electronic controller KFUEX1.

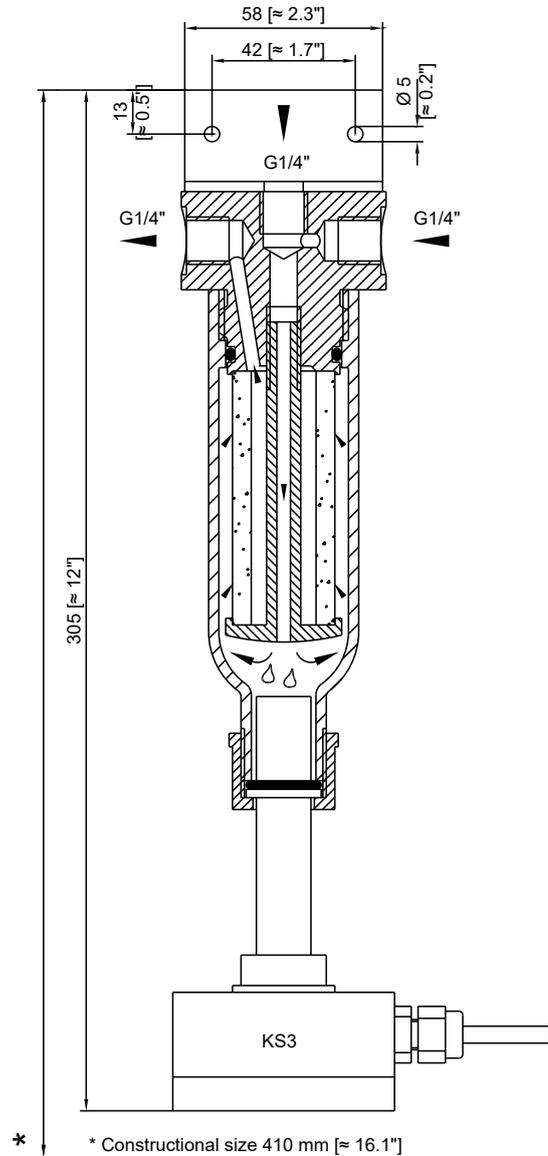
**KS3/KS3 EX, KS3 EX PEEK  
liquid alarm sensor**



**KS3 EX PEEK SS, KS3 EX SS  
liquid alarm sensor**

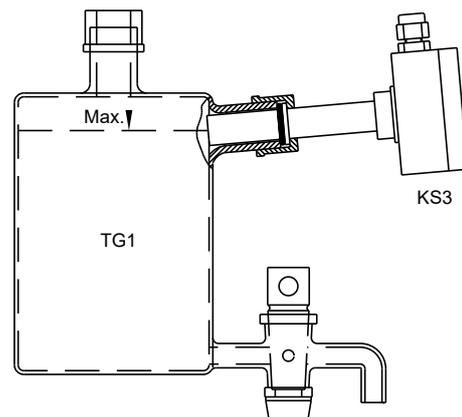


**Liquid alarm sensor KS3/KS3 EX,  
KS3 EX PEEK, KS3 EX PEEK SS, KS3 EX SS  
in a universal filter F...-...-D**



In the event of condensate penetration, the filter housing acts as a buffer vessel preventing immediate liquid ingress.

**KS3... liquid sensor for filling level  
monitoring in condensate vessel TG1**



Dimensions in mm [Inches]

Sensor	KS3	KS3 Peek	KS3 SS	KS3 Peek SS
Part No.	03E4150	03E4160	03E4170	03E4180
Pressure	Max. 2 bar abs.	Max. 11 bar abs.	Max. 2 bar abs.	Max. 11 bar abs.
Max. operating temperature	-20 bis +60 °C* [-4 to 140 °F]*			
Liquid alarm limit	1.5 ml			
Material of sample-contacting parts	PTFE, Chemraz®, SS 316Ti	Peek, Chemraz®, SS 316Ti	PTFE, Chemraz®, SS 316Ti	Peek, Chemraz®, SS 316Ti
Sample connection standard (Fitting for mounting in stainless steel filter: connector GE SS ½" NPT - 18 mm Part No. 09V2317)	ø 16 mm for GL25	ø 16 mm for GL25	ø 18 mm for mounting inside stainless steel filter FSS...-D with 1/2" NPT	ø 18 mm for mounting inside stainless steel filter FSS...-D with 1/2" NPT
Method of mounting/mounting position	Clamping attachment/for liquid alarm vertical mounting position with opening facing upwards			
Power supply	8-12 V DC, feeding via FA1.1 or FA1.4			
Connection cable, length 1.5 m [≈ 4.9 ft] standard	3 x 0.34 mm <sup>2</sup>			
Cable	Capacity Inductivity	200 pF/m 1 µH/m		
Protection	IP54 EN 60529			
Weight	230 g [≈ 0.6 lb]		260 g [≈ 0.6 lb]	
Evaluation electronic	FA1.1 or FA1.4 (see data sheet "Electronic Controller Series FA")			

\* To specify the minimum operating temperature, the freezing point of the condensate needs to be considered.

Chemraz® is a registered trademark for perfluoroelastomer by Greene Tweed, USA.

## Technical Data Sensors for EX Areas

Sensor	KS3 EX	KS3 EX Peek	KS3 EX SS	KS3 EX Peek SS
Part No.	03E4250	03E4260	03E4270	03E4280
Pressure	Max. 2 bar abs.	Max. 11 bar abs.	Max. 2 bar abs.	Max. 11 bar abs.
Max. operating temperature	-20 to +50 °C* [-4 to 122 °F]*			
Liquid alarm limit	1.5 ml			
Material of sample-contacting parts	PTFE, Chemraz®, SS 316Ti	Peek, Chemraz®, SS 316Ti	PTFE, Chemraz®, SS 316Ti	Peek, Chemraz®, SS 316Ti
Sample connection standard (Fitting for mounting in stainless steel filter: connector GE SS ½" NPT - 18 mm Part No. 09V2317)	ø 16 mm for GL25	ø 16 mm for GL25	ø 18 mm for mounting inside stainless steel filter FSS...-D with 1/2" NPT	ø 18 mm for mounting inside stainless steel filter FSS...-D with 1/2" NPT
Method of mounting/mounting position	Clamping attachment/for liquid alarm vertical mounting position with opening facing upwards			
Max. voltage/current/power consumption	13.5 V/31 mA/125 mW			
Internal capacity max.	150 nF			
Internal inductivity max.	0 mH			
Power supply	8 V DC/max. 2.4 mA during operation: < 1.4 mA alarm			
Connection cable, length 1.5 m [≈ 4.9 ft] standard	2 x 0.25 mm <sup>2</sup>			
Cable	Capacity Inductivity	200 pF/m 1 µH/m		
Marking/certificate No.	<span>Ex</span> II 2G Ex ia IIC T6 Gb (if mounted inside a filter or a condensate vessel: <span>Ex</span> II 2G Ex ia IIB T6 Gb) BVS 16 ATEX E 127 IECEx BVS 16.0092			
Weight	230 g [≈ 0.5 lb]		260 g [≈ 0.6 lb]	
Evaluation electronic	KFU8Ex1 with broadband power supply 90-253 V AC, part No. 01U2502			

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