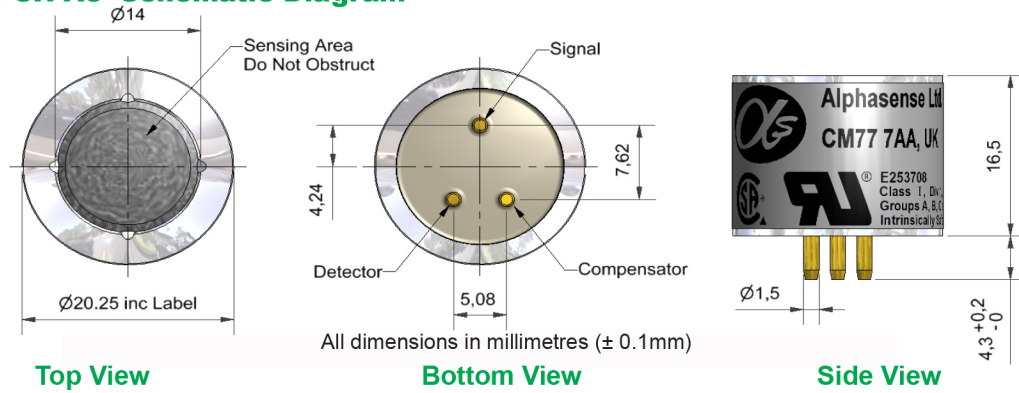


AlphaSense CH-A3 Combustible Gas Pellistor Sensor

Technical Specification

Figure 1 CH-A3 Schematic Diagram



PERFORMANCE

Sensitivity	mV / % methane	15 to 22
Response time	t ₉₀ from air to 50% LEL methane (s)	< 15 (typically < 7)
Zero	mV in zero air	±20
Range	% LEL methane	0 to 100
Linearity	% methane when 5% non-linear	6

ENVIRONMENTAL

Sensitivity @ -20°C	% sensitivity change, referenced to 20°C	< 100.5 to 105.5
Sensitivity @ 50°C	% sensitivity change, referenced to 20°C	< 100 to 103
Zero @ -20°C	% LEL change, referenced to 20°C	< +0.5 to -2
Zero @ 50°C	% LEL change, referenced to 20°C	< 0 to -1.5
Temperature Range	Certification to T4	-40° to +55°C
Humidity	12% sensitivity loss from 0% to 80 % rh (22°C)	
Pressure	Typical zero increase % LEL from 0 to 80 %rh (22°C)	1.0
	Sensitivity change from 0 to 75 kPa (gauge)	< 3%

INHIBITION/POISONING

Chlorine	12hrs 20ppm Cl ₂ , 50 % sensitivity loss, 2 day recovery	< 10% loss
Hydrogen Sulfide	12hrs 40ppm H ₂ S, 50 % sensitivity loss, 2 day recovery	< 50% loss
HMDS	hrs until 50% activity loss @ 10ppm HMDS	9
Optional H2S disposable filter can be ordered. Part no. ASF-1		

ELECTRICAL

Voltage	V (±0.2 V)	3.0
Power consumption	mW	190
Voltage sensitivity	% sensitivity change / 0.1V change	3

KEY SPECIFICATIONS

Weight	g	< 26
Operating life	months until 75% original sensitivity (24 month warranted)	> 24

Table 1 Sensitivity

Hydrocarbon/Gas	% Sensitivity relative to Methane	% LEL Sensitivity to Methane	Hydrocarbon/Gas	% Sensitivity relative to Methane	% LEL Sensitivity to Methane
Hydrogen	130 to 140	160 to 175	Carbon Monoxide	42 to 44	17 to 18
Propane	150 to 190	350 to 450	Acetylene	150 to 170	300 to 340
Butane	150 to 180	420 to 500	Ethylene	150 to 170	270 to 320
n-Pentane	180 to 200	600 to 670	Isobutylene	180 to 200	450 to 500
Nonane	150 to 170	800 to 950			



At the end of the product's life, do not dispose of any electronic sensor, component or instrument in the domestic waste, but contact the instrument manufacturer, Alphasense or its distributor for disposal instructions.

NOTE: all sensors are tested at ambient environmental conditions, with methane, unless otherwise stated. As applications of use are outside our control, the information provided is given without legal responsibility. Customers should test under their own conditions, to ensure that the sensors are suitable for their own requirements.

Figure 2 Sensitivity Temperature Dependence

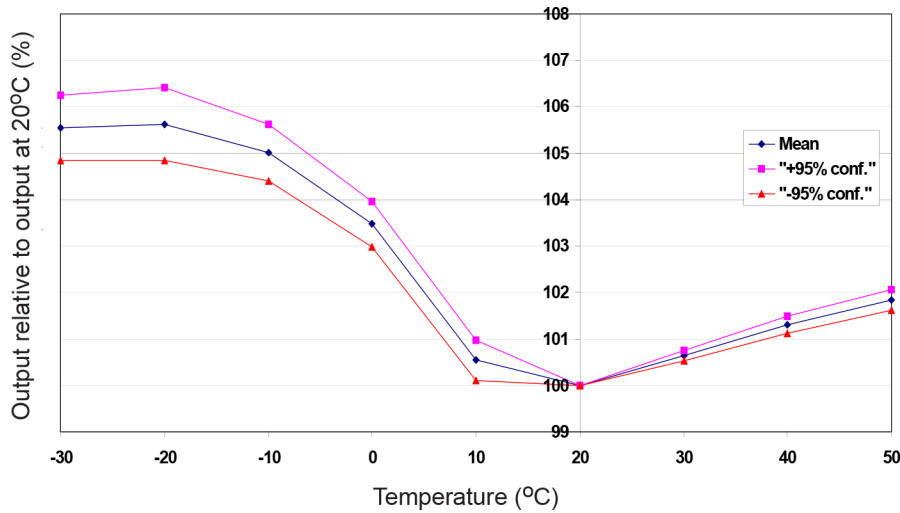


Figure 2 shows the variation in sensitivity caused by changes in temperature.

Data taken from a typical batch of sensors and the mean and $\pm 95\%$ confidence intervals are shown.

Figure 3 Linearity

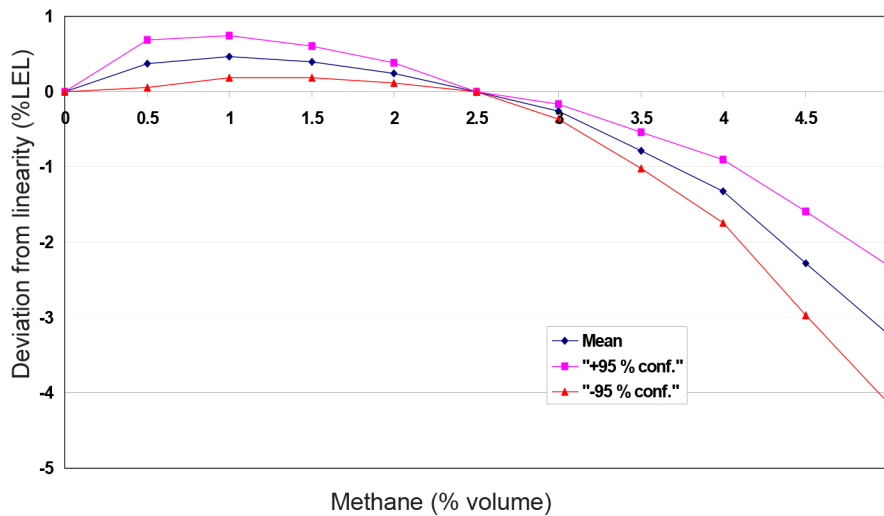


Figure 3 shows the non-linearity from 0 to 5% methane (volume). Sensor non-linearity at 100% LEL is less than 4%.

Data taken from a typical batch of sensors and the mean and $\pm 95\%$ confidence intervals are shown.

CERTIFICATION

Sira 07ATEX 1088X



II 2 G
Ex d IIC T4
-40°C to +55°C
5V, 1.4 W

IECEx SIR07.0031X

Ex d IIC T4
5Vdc, 1.4 W, T_a -40° to +55°C

UL913 091007-E253708

Class I, II and III, Division 1
10 V, 1.5 W, 10 μ H

CSA 22.2 1906313

Class 4828 31

SPECIAL CONDITIONS FOR SAFE USE (denoted by X after the certificate number)

The non-metallic parts of the Flameproof Sensor Housings shall only be installed in enclosures that offer protection from mechanical impact damage and shall not be exposed to ultraviolet radiation.

The final installation of the Flameproof Sensor Housings shall ensure that any likely damage from dropping the complete device has been considered.

The Flameproof Sensor Housings shall only be connected to an electrical supply that is certified as compliant with IEC 60079-11 and limited to the following: Type A - 5 Vdc, 1.4 W