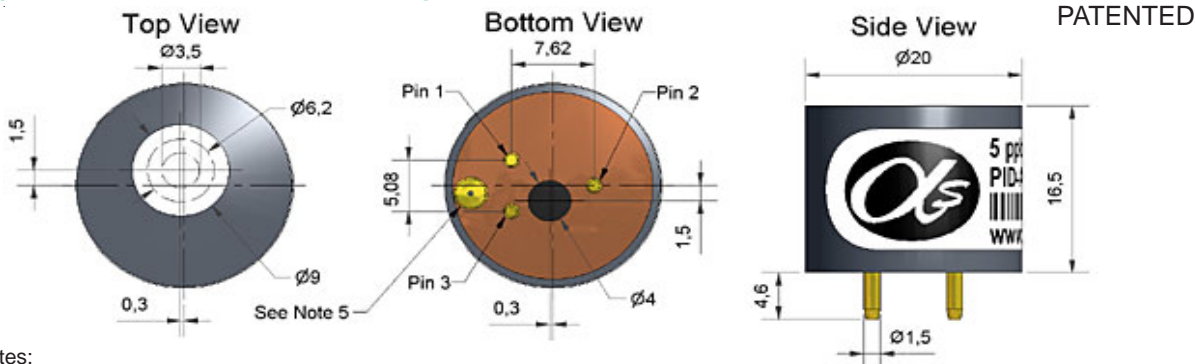




# PID-AH Photo Ionisation Detector



Figure 1 PID-AH Schematic Diagram



Notes:

- Do not obstruct  $\phi 3.5$  sensing area
- Seal between  $\phi 6.2$  and  $\phi 9.0$  . (if different to atmosphere)
- Pin out details:  
Pin 1: + V supply (See note 5)  
Pin 2: Signal output.  
Pin 3: 0 V supply.
- All dimensions  $\pm 0.1$ mm unless otherwise stated.
- Input voltage selector:  
a) When filled with solder the onboard regulator is disabled. A regulated supply of 2.8 - 3.6 V (typically 3.0 - 3.2 V) is then required  
b) When not filled with solder the onboard regulator is enabled. A regulated or unregulated supply between 3.6 - 20 V is then required.  
**Normally shipped with regulator enabled.**

### PERFORMANCE

Target gases	VOCs with ionisation potentials < 10.6eV	
Minimum detection level	(ppb isobutylene)	5
Linear range	(ppm isobutylene)(3% deviation)	50
Overrange	(ppm isobutylene)	50
Sensitivity	(linear range) (mV / ppm Isobutylene)	> 20
Full stabilisation time	(minutes to 20ppb)	20
Warm up time	(seconds) time to full operation	5
Offset voltage	(mV)	50-80
Response time ( $t_{90}$ )	(seconds) diffusion mode	<3

### ELECTRICAL

Power consumption	Typical at 3.3V	110mW
Supply voltage	Onboard regulator requires 3.6 to 20VDC Regulator can be shorted with solder blob Supply is then 3.0 to 3.6VDC (regulated $\pm 0.01$ V)	
Output signal	Offset Voltage to $V_{max}$ ( $V_{max} = V_{supply} - 0.1$ V)	

### ENVIRONMENTAL

Temperature range	-40°C to +40°C (Intrinsically safe) -40°C to +60°C (Non IS)
Temperature dependence	0°C to 40°C 95% to 100% of signal -20°C 125% of signal at 20°C
Relative humidity range	non-condensing 0 to 95%
Humidity sensitivity	Near zero

### KEY SPECIFICATIONS

Expected operating life	5 years (excluding replaceable lamp and electrode stack)
IS Approval	IECEX Ex ia IIC T4; ATEX Ex ia II 1G -40°C < $T_a$ < +40°C
Onboard filter	To remove liquids and particulates
Lamp replacement	User replaceable (10.6 eV)
Electrode stack	User replaceable
Package type	Alphasense™ CH-A3 or City Technology™ 4P
Weight	< 8g
Position sensitivity	None
Warranty period	24 months or 18 months from installation, whichever comes first

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, 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.

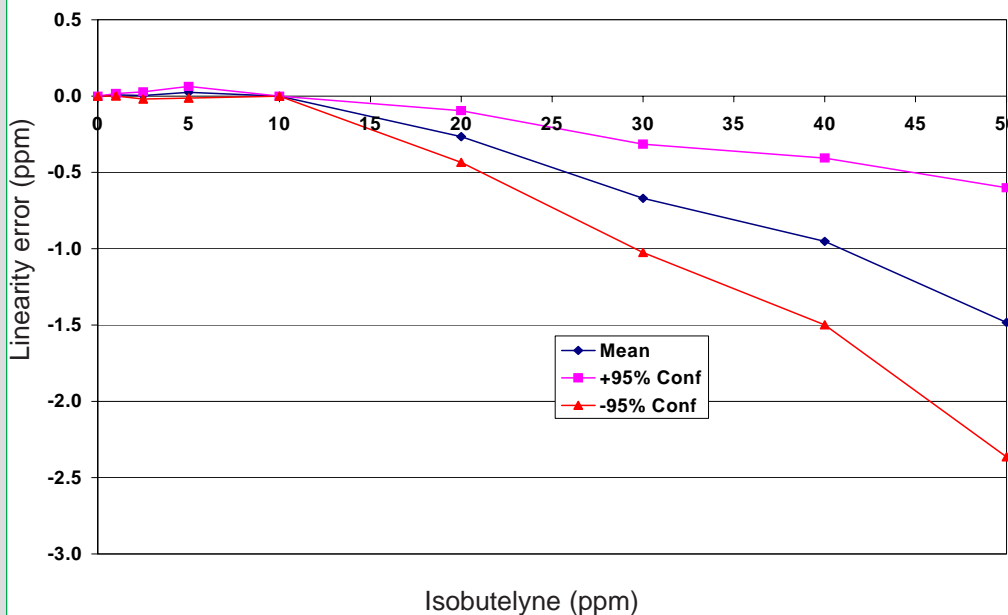
Technical Specification



# PID-AH Performance Data

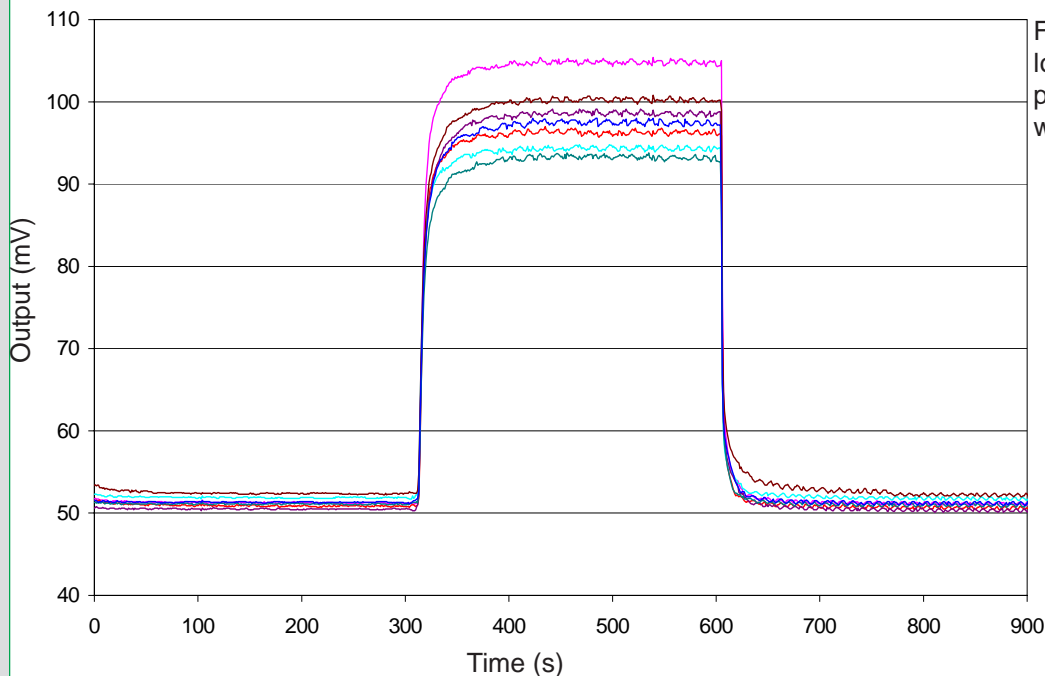
Technical Specification

Figure 2 Linearity



Reduced sensitivity at higher concentrations is a chemical/physical effect and can be corrected generically in software.

Figure 3 Response to 1ppm Isobutylene



Fast response and low noise allow low ppb measurements with the PID-AH.

For further information on the performance of this sensor, on other sensors in the range or any other subject, please contact Alphasense Ltd. For Application Notes visit "[www.alphasense.com](http://www.alphasense.com)".