

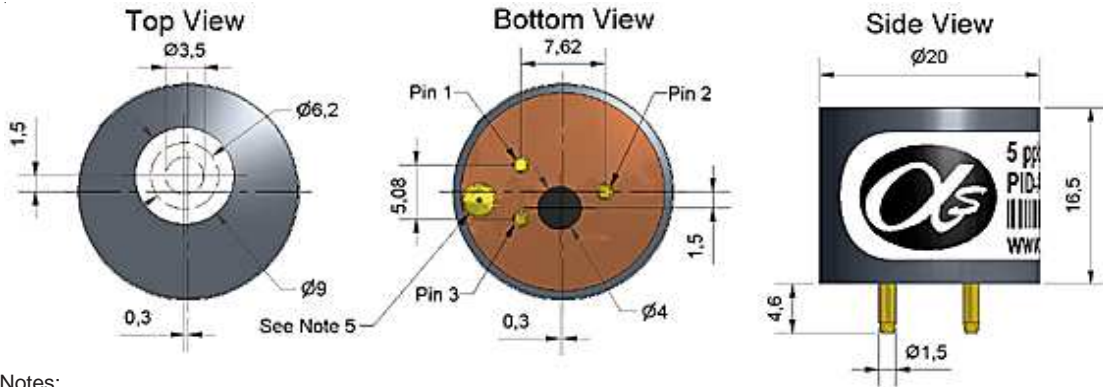


PID-AH Photo Ionisation Detector



US patent 7,046,012
 US patent 7,821,270
 EU patent 1474681
 Other patents

Figure 1 PID-AH Schematic Diagram



Notes:

- Do not obstruct $\varnothing 3.5$ sensing area
 - Seal between $\varnothing 6.2$ and $\varnothing 9.0$ (if different to atmosphere)
 - Pin out details:
 - Pin 1: + V supply (See note 5)
 - Pin 2: Signal output
 - Pin 3: 0V supply
 - All dimensions ± 0.1 mm unless otherwise stated
 - Input voltage selector hole:
 - a) When filled with solder the onboard regulator is disabled. A regulated supply of 3.2 - 3.6 V (typically 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 - 10 V is then required for IS applications, or up to 18 V for non-IS applications.
- Nomally shipped with regulator enabled.**

PERFORMANCE

Target gases	VOCs with ionisation potentials < 10.6 eV		
Minimum detection level	ppb isobutylene		1
Linear range	ppm isobutylene	3% deviation	50
Overrange	ppm isobutylene		50
Sensitivity	linear range	mV / ppm Isobutylene	> 20
Full stabilisation time	minutes to 20 ppb		20
Warm up time	seconds	time to full operation	5
Offset voltage	mV variable between detectors		46 to 60
Response time (t_{90})	seconds	diffusion mode	< 3

ELECTRICAL

Power consumption	85 mW (max) at 3.2 V, 300 mW transient for 200 msec on switch-on
Supply voltage	3.2 to 3.6 VDC Ideally regulated ± 0.01 V (onboard regulator disabled) 3.2 to 10 VDC (onboard regulator enabled) (maximum 10V for IS approval, maximum 18 V for non-IS)
Output signal	Offset voltage (minimum 46 mV) to Vmax (Vmax = Vsupply - 0.1 V when regulator is enabled)

ENVIRONMENTAL

Temperature range	-40°C to +55°C (Intrinsically Safe); -40°C to +65°C (non-IS)		
Temperature dependence	0°C to 40°C	90% to 100% of signal at 20°C	
	-20°C	140% of signal at 20°C	
Relative humidity range	Non-condensing		0 to 95%
Humidity sensitivity	During operations: 0% to 75% rh transient		near zero

KEY SPECIFICATIONS

Operating life	5 years (excluding replaceable lamp and electrode stack)
IS Approval	IECEx Ex ia IIC T4; ATEX Ex ia II 1G -40°C < Ta < +55°C (< 10VDC supply)
Onboard filter	To remove liquids and particulates
Lamp	User replaceable
Electrode stack	User replaceable
Error state signal	Lamp out: 35 mV
Weight	< 8g
Position sensitivity	None
Warranty period	Electronics and housing: 24 months Lamp and electrode stack are user replaceable. 10.6eV lamp: 5,000 lit hours

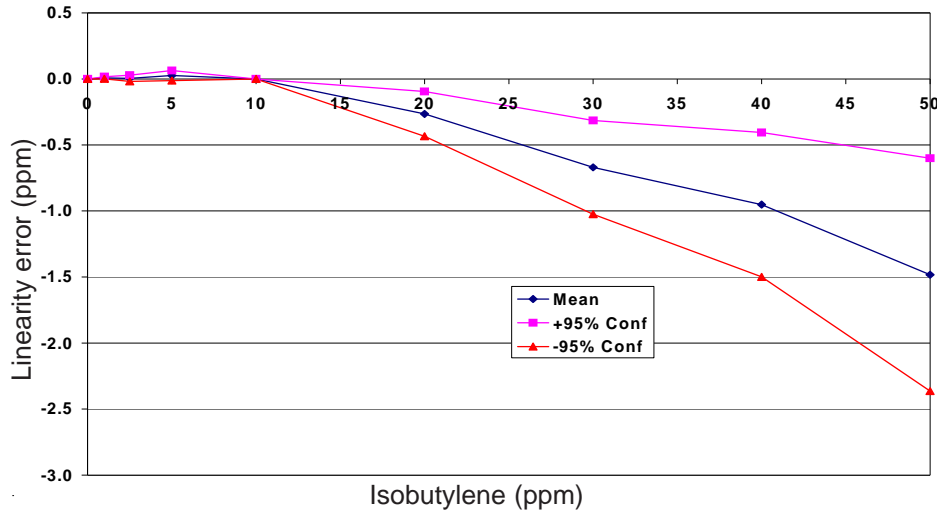
Technical Specification



PID-AH2 Performance Data

Technical Specification

Figure 2 Linearity to Isobutylene



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

Non-linearity correction depends on the VOC being measured.

Figure 3 Selecting the right lamp

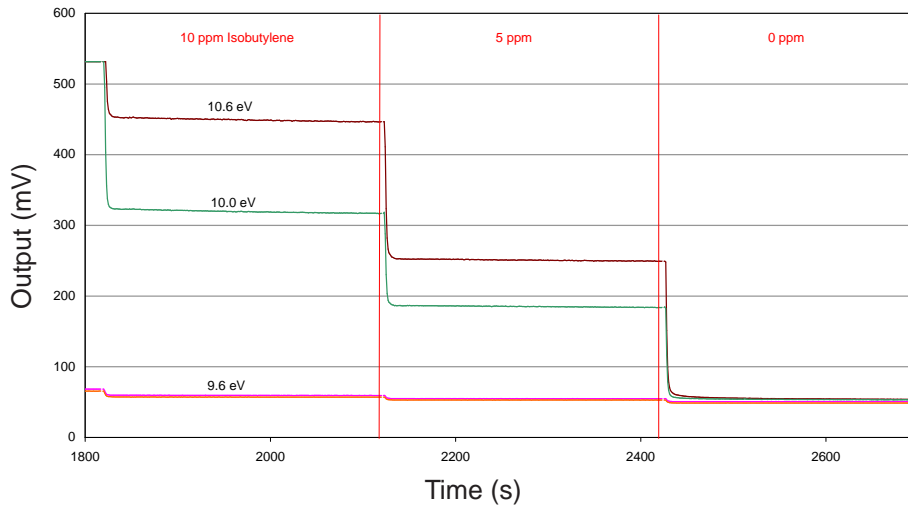


Figure 3 compares the output to 5 and 10ppm Isobutylene for 9.6 eV, 10.0 eV and 10.6eV lamps.

9.6eV lamps are slightly more selective for BTEX detection, but 10.0 eV lamps give better sensitivity.

PID Replaceable Parts/Consumables List

Lamp type	Product code	Minimum sensitivity mV/ppm	Minimum range ppm isobutylene	Lamp life lit hours
10.0 eV	001-0030-02	0.2	70	5,000
10.6 eV (HPPM)	001-0019-04	0.3	50	5,000
10.6 eV (LLHS)	001-0030-01	0.8	50	5,000
Electrode stack	001-0018-01			
Stack removal tool	001-0020-00			
Lamp spring	001-0023-00			
Lamp cleaning kit	001-0024-00			