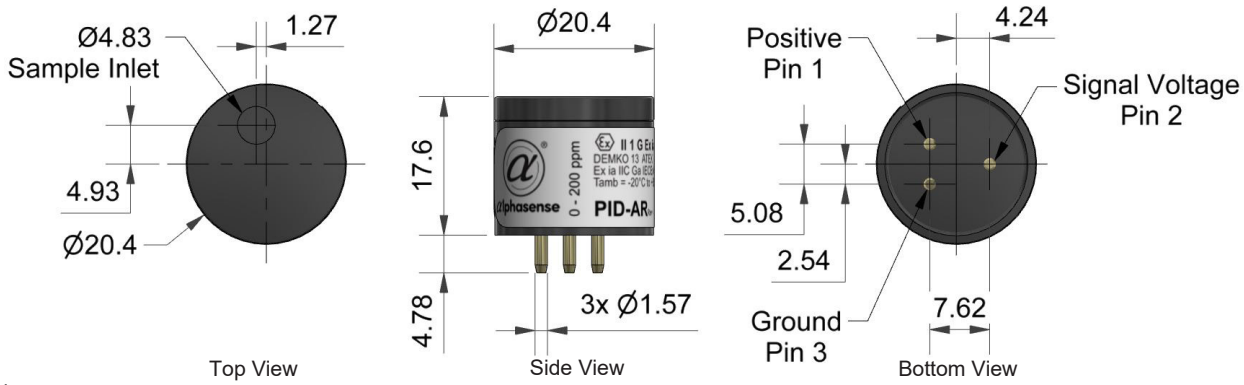
PID-AR5 Photo Ionisation Detector

Technical Specification

Figure 1 PID-AR5 Schematic Diagram



Notes:

1. Do not obstruct Ø4.83 sensing area
2. Pin out details:
   Pin 1: + V supply
   Pin 2: Signal output
   Pin 3: 0 V supply
3. All dimensions ±0.1mm unless otherwise stated
4. Use of socketed connection is required.
5. Soldering or cutting the connection pins may permanently damage the sensor and void the warranty.

PERFORMANCE (using 10.6 eV lamp)

Target gases	VOCs with ionisation potentials < 10.6 eV		
Minimum resolution	ppb isobutylene		10
Linear range	ppm isobutylene		200
Overrange	ppm isobutylene		200
Sensitivity minimum range	linear range	mV / ppm Isobutylene	6
Sensitivity typical range	linear range	mV / ppm Isobutylene	11
Full stabilisation time	minutes		5
Warm up time	seconds	time to full operation	5
Offset voltage	mV		40~75
Response time (t_{90})	seconds	diffusion mode	2

ELECTRICAL

Power consumption	80mW ~ 200 mW depending on supply voltage
Supply voltage	3.2 ~ 5.5 VDC
Output signal	0.040~2.85V

ENVIRONMENTAL

Temperature range	-20ºC ~ +60ºC	
Temperature dependence	see chart	
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 Ga; ATEX II 1 G Ex ia IIC Ga -20ºC < Ta < +60ºC
Onboard filter	To remove liquids and particulates
Lamp	User replaceable. Expected life = 10,000 hours
Electrode stack	User replaceable
Weight	< 8g
Position sensitivity	None
Warranty period	Electronics and housing: 12 months Lamp and electrode stack are user replaceable. 10.6eV lamp: 6,000 lit hours
Patent information	US Pat 6,646,444. Japan Pat 3,793,757

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.

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PID-AR5 Performance Data

Technical Specification

Figure 2 Sensitivity Temperature Dependence

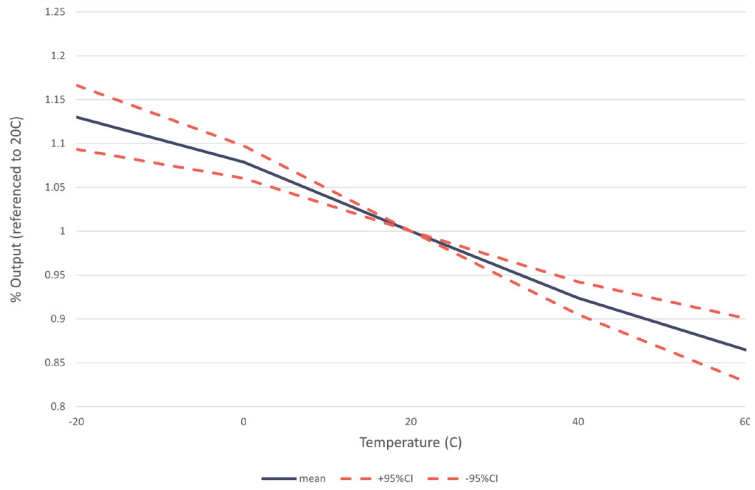

Figure 2 shows the temperature dependence, corrected for the gas law.

This data is taken from a typical batch of PID-AR5 sensors tested with 100ppm Isobutylene.

The mean and ±95% confidence intervals are shown.

Figure 3 Linearity to Isobutylene

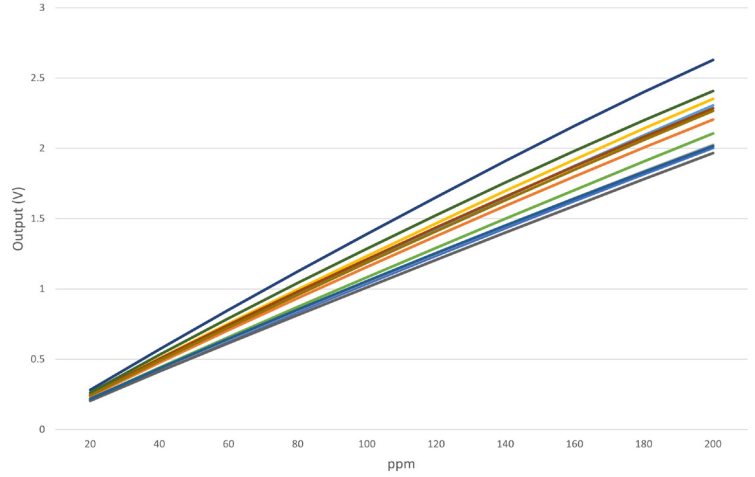

Figure 3 shows the response curve of 20 sensors throughout the entire operating range. Sensors are linear throughout the entire range.

Table 1: PID Replaceable Parts/Consumables List

Part Number	Description	Part Number	Description
001-003	Gas Hood	001-0043-00	Maintenance Kit, which includes: 2 ea Polishing Disc 2 ea 10 µm, Cloth, Bottom Filter 2 ea 1 µm, Teflon, Top Filter, Large 1 ea Padded Swab
001-0037-00	Cap with Key		
001-0038-00	Spacer		
001-0039-00	1 µm, Teflon, Top Filter, Large	001-0044-00	Sensor Rebuild Kit, which includes: 2 ea 10.6 eV Lamp 1 ea Detector Ionisation Cell Assembly 1 ea 1 µm, Teflon, Top Filter, Large 1 ea 10 µm, Cloth, Bottom Filter
001-0040-00	10 µm, Cloth, Bottom Filter		
001-0041-00	Detector Ionisation Cell Assembly		
001-0042-00	10.6 eV Lamp	001-0045-00	Lamp Cleaning Kit
001-0046-00	10.6 eV Lamp Individual Package	001-0047-00	Fast Response 0 to 2000 ppm sensor

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.