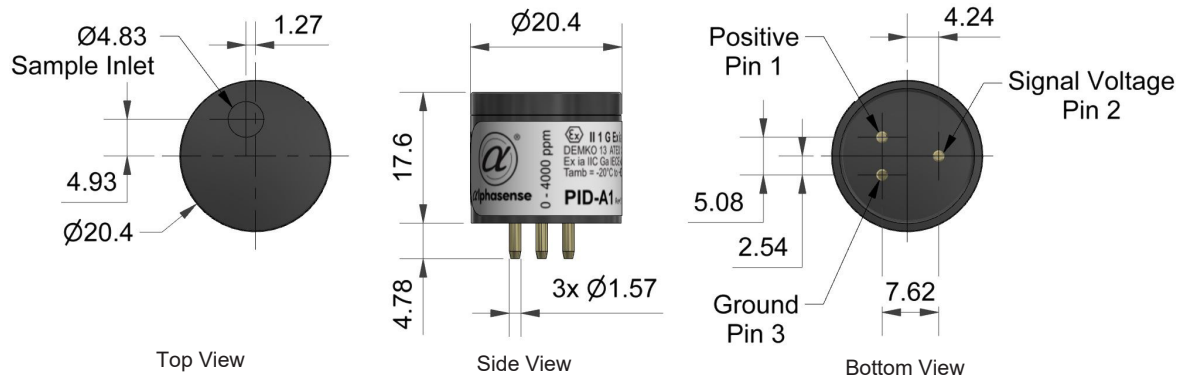




# PID-A15 Photo Ionisation Detector



**Figure 1 PID-A15 Schematic Diagram**



**Notes:**

- Do not obstruct  $\varnothing 4.83$  sensing area
- Pin out details:  
Pin 1: + V supply  
Pin 2: Signal output  
Pin 3: 0 V supply
- All dimensions  $\pm 0.1$ mm unless otherwise stated
- Use of socketed connection is required.
- 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		100
Linear range	ppm isobutylene		200
Overrange	ppm isobutylene		4,000
Sensitivity minimum range	linear range	mV / ppm Isobutylene	0.69
Sensitivity typical range	linear range	mV / ppm Isobutylene	1.1
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	80 mW ~ 200 mW depending on supply
Supply voltage	voltage 3.2 ~ 5.5 VDC
Output signal	0.040~2.85V

**ENVIRONMENTAL**

Temperature range	-20°C ~ +60°C	
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 -20°C < Ta < +60°C
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.



# PID-A15 Performance Data

Technical Specification

**Figure 2 Sensitivity Temperature Dependence**

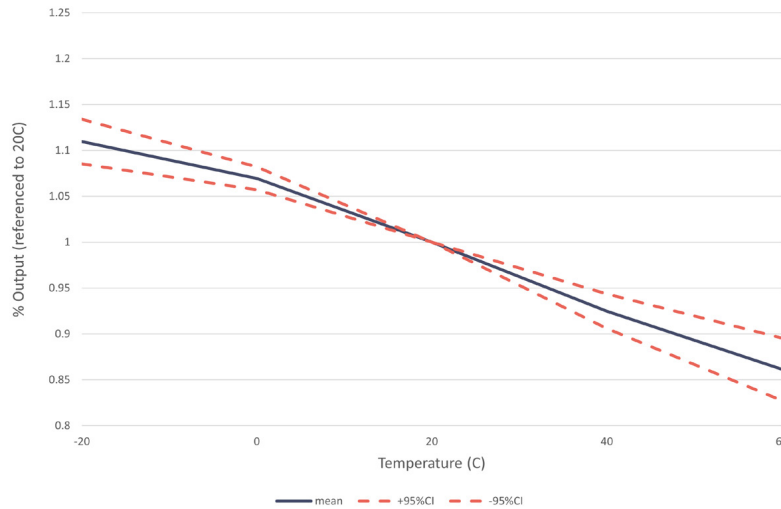


Figure 2 shows the temperature dependence, corrected for the gas law.

This data is taken from a typical batch of PID-A15 sensors tested with 100ppm Isobutylene.

The mean and  $\pm 95\%$  confidence intervals are shown.

**Figure 3 Linearity to Isobutylene**

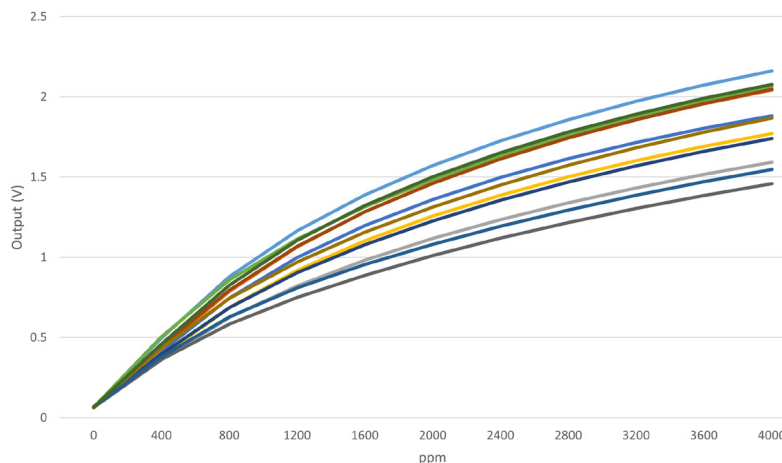


Figure 3 shows the response curve of 20 sensors throughout the entire operating range. PID output is nonlinear at higher concentrations but is repeatable and can be corrected in software.

**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
001-0037-00	Cap with Key		2 ea 10 $\mu$ m, Cloth, Bottom Filter
001-0038-00	Spacer		2 ea 1 $\mu$ m, Teflon, Top Filter, Large
001-0039-00	1 $\mu$ m, Teflon, Top Filter, Large		1 ea Padded Swab
001-0040-00	10 $\mu$ m, Cloth, Bottom Filter	001-0044-00	Sensor Rebuild Kit, which includes: 2 ea 10.6 eV Lamp
001-0041-00	Detector Ionisation Cell Assembly		1 ea Detector Ionisation Cell Assembly
001-0042-00	10.6 eV Lamp		1 ea 1 $\mu$ m, Teflon, Top Filter, Large
001-0046-00	10.6 eV Lamp Individual Package	001-0045-00	1 ea 10 $\mu$ m, Cloth, Bottom Filter
		001-0047-00	Lamp Cleaning Kit
			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.

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