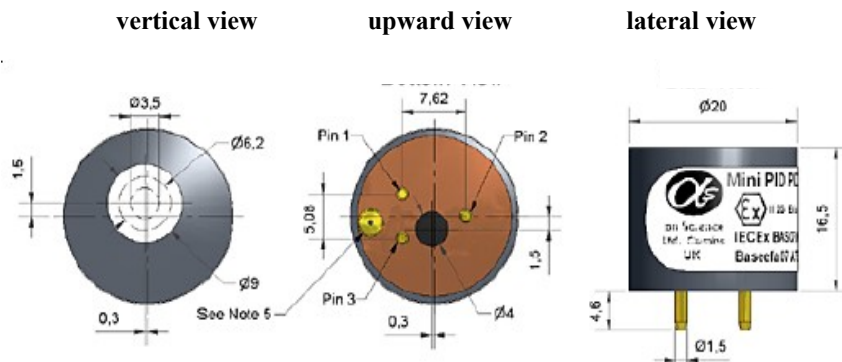


## PID-A12 Photoion Detector

Figure 1 PID-A12 Diagram



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

pour :

### 1. Do Not Block the 3.5mm Induction Area

2. Sealing Is Required Between Diameters 6.2 and 9.0mm (if Different from Atmospheric Pressure)

### 3. Pin Definition:

Pin 1: Power input; Pin 2: Signal output; Pin 3: 0V power supply

4. Unless Otherwise Stated, All Dimensional Errors Are  $\pm 0.1$ mm

### 5. Input Voltage Selection Hole:

a) After Filling the Solder, the Internal Voltage Regulator Is Not Enabled and a Stable Input Voltage Is Required

3.2~3.6V (generally 3.2V)

b) When soldering is not filled, the internal voltage regulator is enabled. In this case, the intrinsically safe application requires a regulated or unregulated power supply of 3.6-10V, and the non-intrinsically safe application can reach 18V. The sensor will adjust the voltage to 3.3V internally.

The voltage regulator is usually not activated at delivery

### Performance (using 10.6eV bulb 001-0019-04)

Target gas	VOC with ionization potential less than 10.6 eV	
minimum resolution	ppb isobutene	< 50
linearity range	ppm isobutylene (5% deviation)	200
Overdrive	ppm isobutene	4000
sensitivity	Linear range (mV/ppm isobutylene, selected according to Table 1)	> 0.6
stabilization time	Time to 100ppb (minutes)	20
preheating time	Seconds (the time from startup to full operation)	5
offset voltage	mV	50~59
Response time (t90)	Seconds (diffusion mode)	< 3

Electrical characteristics power consumption

3.2V power supply 85mW (maximum), 350mW instantaneous power consumption for 200ms on power up  
The power supply is generally 90mW at 3.3V, and the instantaneous power consumption of 460mW lasts for 200ms when powered on

supply electricity

3.2~3.6VDC Ideal adjustment range  $\pm 0.01$ V (board voltage regulator is not enabled)

**3.6~10VDC (board voltage regulator enabled)**

(The maximum 10V for the intrinsically safe application, and the maximum 18V for the non-intrinsically safe application)

output signal

Offset voltage (minimum 50mV) ~Vmax (when the regulator is enabled  $V_{max} = V_{supply} - 0.1V$ )

environment

temperature range  
temperature characteristic

-40°C ~ +55°C (intrinsically safe); -40°C ~ +65°C (non-intrinsically safe)

0°C ~ 40°C 20°C when the signal is 90%~100%

-20°C 140% of the signal at 20°C

Relative humidity range

Non-condensing

0~95%

Humidity sensitivity

Working period: 0~75%rh transient

Near the zero point

Key parameters

Expected life  
IS certification  
onboard filter membrane  
bulb grid

5 years (excluding replaceable bulbs and grilles)

IECEX Ex ia IIC T4; ATEX Ex ia II 1G-40°C <Ta <+55°C (operating on <10VDC power) filtering liquids and particulate matter

Users can replace

Users can replace

Error status

Light bulb out:  $32 \pm 1$ mV Circuit board fault:  $27 \pm 1$ mV

signal weight

<8 grams

Location sensitivity  
Quality assurance period

not have

Electronic copy and physical copy: 12 months

The bulb and the grid are replaceable. 10.6eV bulb: 5000 hours

Figure 2 Sensitivity Temperature Characteristics

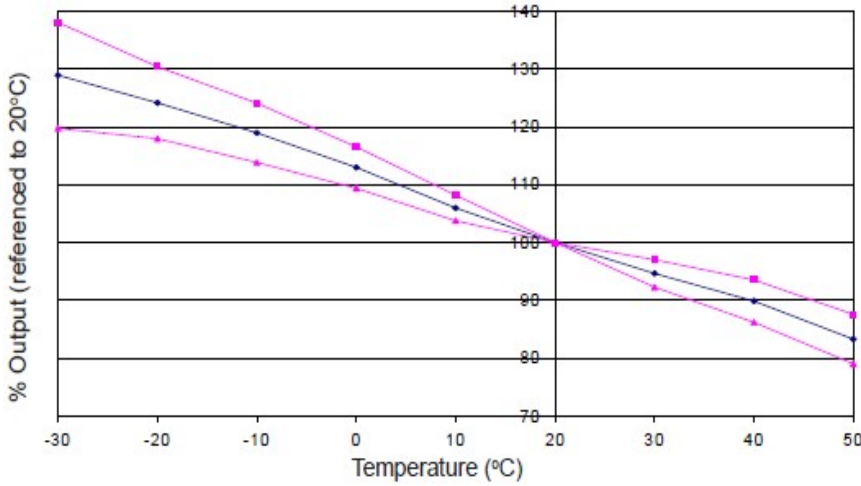
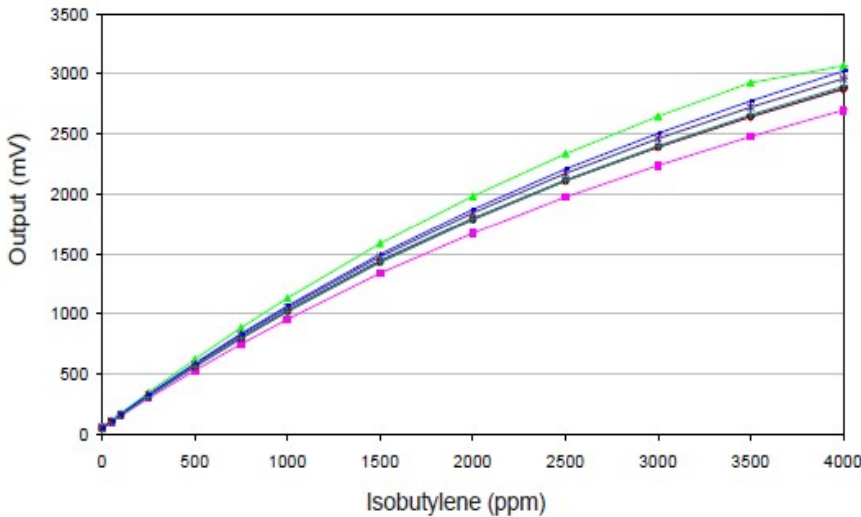


Figure 2 shows the temperature characteristics of sensitivity, which has been corrected for the gas law.

This data is derived from the test results of the PID - A12 sensor in a typical batch of isobutylene 100ppm.

Figure 2 shows the percentage (reference 20°C) mean and ± 95% confidence intervals of the outputs.

Figure 3 Linearity (isobutylene)



The output of PID is non-linear at high concentrations, but it can be repeated, which can be corrected in the software.

Nonlinear correction depends on the VOC being measured.

Table 1: PID consumable parts list

应用	料号	最低灵敏度 mV/PPM	最大量程 PPM(点丁烷)	灯泡寿命
9.6eV	001-0030-00	0.25	8000 (est)	TBD
10.0eV	001-0030-02	0.15	>20000	5000
10.6eV (HPPM)	001-0019-04	0.6	4000	5000
10.6eV (LLHS)	001-0030-01	0.6	4000	5000
栅极	001-0018-02			
栅极拆卸工具	001-0020-00			
灯泡弹簧	001-0023-00			
灯泡清洗套装	001-0024-00			

料号	稳压器	灯泡	应用电压	认证
PID-A12	未启用	HPPM10.6eV	3.2~3.6	是
PID-A12	启用	HPPM10.6eV	3.6~10 (10.1~18)	是(否)
PID-A120	未启用	LLHS10.6eV	3.2~3.6	是
PID-A120	启用	LLHS10.6eV	3.6~10 (10.1~18)	是(否)
PID-A129	未启用	9.6eV	3.2~3.6	是
PID-A129	启用	9.6eV	3.6~10 (10.1~18)	是(否)
PID-A12X	未启用	10.0eV	3.2~3.6	是
PID-A12X	启用	10.0eV	3.6~10 (10.1~18)	是(否)

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