

# MIDAS<sup>®</sup>-M PHOSPHINE (PH<sub>3</sub>)

## Smart Sensor Specifications

Bringing new visibility, reliability, and ease-of-use to gas detection in semiconductor processing and industrial manufacturing.



GAS MEASURED	PHOSPHINE (PH <sub>3</sub> )
Cartridge Part Number	MMS-R2
Sensor Technology	3 electrode electrochemical cell
Measuring Range	PH <sub>3</sub> 0 ppb to 1200 ppb
Default Alarm 1	150 ppb (rising)
Default Alarm 2	300 ppb (rising)
Accuracy	<±5% of measured value Exposure to PH <sub>3</sub> 600 ppb for 5 minutes
Response Time (t <sub>62.5</sub> )	Typical 6 seconds
Sensor Cartridge Life Expectancy	24 months under typical application conditions
Operating Temperature	0°C to 40°C (32°F to 104°F)
Effect of Temperature	
Zero	<±1 ppb/°C
Sensitivity	<±0.6% of measured value/°C
Operating Humidity (continuous)	10% RH to 90% RH
Effect of Humidity	
Zero	<±0.5 ppb/% RH
Sensitivity	<±0.5% of measured value/% RH
Operating Pressure	90 kPa to 110 kPa
Effect of Position	No effect in typical application
Long Term Drift	
Zero	
Sensitivity	<±5% of measured value/6 month
Calibration Gas	Phosphine (300 ppb to 900 ppb, default 600 ppb)
Challenge Gas (Bump Test)	Phosphine (PH <sub>3</sub> 600 ppb)
Warm Up Time	<20 minutes
Storage Temperature	5°C to 25°C (41°F to 77°F)

The sensor data listed is based on the test data under normal lab test conditions (20°C to 25°C, 0% RH to 60% RH, normal atmosphere pressure); observed performance may vary based on the actual monitoring system and the sampling conditions employed.

# Midas<sup>®</sup>-M Phosphine (PH<sub>3</sub>) Specifications

## OTHER DETECTABLE GASES

The following additional gases can be detected with this sensor cartridge. Sensor performance and characteristics will be representative of the data as tabulated above. Consult the Technical Manual to set up the Midas<sup>®</sup>-M transmitter with the designated identification code for each of the following gas types:

DETECTABLE GAS	CHEMICAL FORMULA	MEASURING RANGE

## CROSS SENSITIVITIES

Each Midas-M sensor is potentially cross sensitive to other gases and this may cause a gas reading when exposed to other gases than those originally designated. The table below presents typical readings that will be observed when a new sensor cartridge is exposed to the cross sensitive gas (or a mixture of gases containing the cross sensitive species).

**NOTE: The cross sensitivity data shown below does not form part of the product specification and is supplied for guidance only. Values quoted are based on tests conducted on a small number of sensors and any batch may show significant variation.**

GAS/VAPOR	CHEMICAL FORMULA	CONCENTRATION APPLIED (ppm)	READING (ppm PH <sub>3</sub> )
Ammonia	NH <sub>3</sub>	50	<380
Arsine	AsH <sub>3</sub>	0.15	120
Carbon Dioxide	CO <sub>2</sub>	5000	0
Carbon Monoxide	CO	85	0
Chlorine	Cl <sub>2</sub>	0.85	<-50
Diborane	B <sub>2</sub> H <sub>6</sub>	0.2	10
Hydrocarbons	CH <sub>4</sub>	18000	0
Hydrogen	H <sub>2</sub>	3100	<50
Hydrogen Chloride	HCl	7.9	0
Hydrogen Cyanide	HCN	12.6	300
Hydrogen Fluoride	HF	7.2	0
Hydrogen Selenide	SeH <sub>2</sub>	0.85	0
Hydrogen Sulphide	H <sub>2</sub> S	18.2	0
Nitrogen Dioxide	NO <sub>2</sub>	10.1	-1600
Propan-2-ol	C <sub>3</sub> H <sub>7</sub> OH	20000	<50
Silane	SiH <sub>4</sub>	10	1200 (Overrange)
Sulphur Dioxide	SO <sub>2</sub>	17.8	0

## HONEYWELL SAFETY PRODUCTS

### Americas

Honeywell Analytics  
405 Barclay Boulevard  
Lincolnshire, IL 60069  
Tel: +1 847 955 8200  
Toll free: +1 800 538 0363  
Fax: +1 847 955 8208  
detectgas@honeywell.com

### Europe, Middle East, and Africa

Life Safety Distribution AG (LSD)  
Javastrasse 2  
8604 Hegnau  
Switzerland  
Tel: +41 (0)44 943 4300  
Fax: +41 (0)44 943 4398  
gasdetection@honeywell.com

### Asia Pacific, India

Honeywell Analytics Asia Pacific, Co., Ltd.  
7F SangAm IT Tower  
434 Worldcup Buk-ro, Mapo-gu  
Seoul 03922  
South Korea  
Tel: +82 (0)2 6909 0300  
Fax: +82 (0)2 2025 0388  
India Tel: +91 124 4752700  
analytics.ap@honeywell.com

### Mainland China

Honeywell Industrial Safety Gas Detectors  
Building#1, 555 Huanke Road Zhang Jiang  
Hi-Tech Park Pudong New Area Shanghai  
201203, China  
Tel: 021-80386800  
Fax: 021-60246070  
gaschina@honeywell.com

### Taiwan

Honeywell Taiwan Ltd  
6F-2, No.8, ZiQiang S. Road, Jubei City,  
30264 Taiwan  
Tel: +886-3-5169284  
Fax: +886-3-5169339  
analytics.tw@honeywell.com

Manuals and other information about this product are available at:  
[www.honeywellanalytics.com/en/products/Midas-M](http://www.honeywellanalytics.com/en/products/Midas-M)



**THE  
FUTURE  
IS  
WHAT  
WE  
MAKE IT**

**Honeywell**