



# RAEGuard 2 PID

Fixed Detector for VOC's



The RAEGuard 2 PID is a fixed photoionization detector (PID) that measures a broad range of volatile organic compounds (VOCs). The RAEGuard 2 PID operates on 10 to 28 VDC and provides an analog (4-20mA) three-wire signal output, and RS-485 Modbus digital signal output. Calibration and maintenance have been greatly simplified as the digital PID module can be easily removed in hazardous locations for calibration or maintenance.

The RAEGuard 2 PID has a graphic display and LED light status indicator for fault and alarm conditions. In addition, Low, High, and Fault relays<sup>1</sup> can be configured to trigger external alarms or process controls. Over 200 correction factors<sup>1</sup> are pre-programmed, and allow users to display readings of a specific target gas. A magnetic key interface enables the detector to be calibrated and operational parameters adjusted with the explosion-proof enclosure in place.

## KEY FEATURES

- Class I, Division 1 (Zone 1) continuous VOC monitoring solution for hazardous locations
- Three wire 4-20mA analog output and RS-485 digital communication in ModBus protocol
- Three dry contact relays<sup>1</sup> (<30V, 2A) normally open (or normally closed), one for High and Low alarm, another for Fault alarm
- Explosion-proof stainless-steel enclosure suitable for outdoor hazardous environment applications
- Magnetic-key interface eliminates the need to open the explosion-proof housing when adjusting parameters.

## APPLICATIONS

- Refineries and petrochemical plants
- Power plants
- Solvent recovery systems
- Painting and coating operations
- Waste water treatment plants
- Air Quality

- **Continuous VOC monitoring in hazardous and non-hazardous area locations**
- **Reduced maintenance costs due to easily removable sensor module. Sensor and lamp can be removed without tools and serviced in hazardous locations**
- **Faster response time with sample flow-through design powered by internal diaphragm pump**
- **Humidity compensation ensures accurate readings even in humid environments**



The RAEGuard 2 PID can be used to continuously monitor VOC's down to 0.01 ppm in both hazardous and non-hazardous locations.

<sup>1</sup> Relays and Correction factors are disabled when using the 1 to 1000 ppm DigiPiD sensor.



ATEX



IECEX



# RAEGuard 2 PID



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## SPECIFICATIONS

### RAEGuard 2 Fixed Sensor Head Specifications

Basic Parameters	
Working Current	DC 10 to 28V, 210mA at 24V
Power	<5W
Output	<ul style="list-style-type: none"> <li>• 4-20mA</li> <li>• Three-level programmable alarm relays (30 VDC, 2A)</li> <li>• RS-485 (Supports Modbus)</li> </ul>
Sampling	Internal diaphragm pump, up to 500cc/min
IP Rating	IP-65
Mechanical Interface	3/4" NPT Male
Installation	2" pipe-holding or wall mounting
User Interface	Three-key magnetic bar adjustment
Calibration	Two points
Warranty	1 year for the pump, 2 years for the housing and electronics
Environmental Parameters	
Temperature	-4° F to 131° F (-20° C to +55° C)
Humidity	0 to 95% relative humidity, non-condensing
Pressure	90 to 110kPa
Display	
Display	128 x 64 matrix backlit LCD, supports graphic display
Physical Parameters	
Size	10.1" L x 7.9" W x 4.2"H (257 x 201 x 107 mm)
Weight	3.5 kg (7.7 lbs)
Material	316 stainless steel
Certification	
ATEX	Ex II 2(1)G, Ex d [ia Ga] IIC T4 Gb
UL/CSA	Class 1, Div. 1, Groups ABCD T4
IECEX	Ex d [ia Ga] IIC T4, Gb

### DigiPID Sensor Module Specifications

Power Supply	5V ±0.25V DC
Current	110 mA max
Power Consumption	< 0.6W
Measuring Range	0.01 to 100 ppm 0.1 to 1000ppm 1 to 1000 ppm (No relays or correction factors)
Resolution	10 ppb, 1 ppm (depends on model)
Response Time	Pumped (T90): <30 s
Calibration	Two-point off-line and field calibration Optional three-point calibration
Accuracy	±2% for calibration point
Analog Output	0.5 - 2.5V (ro=1.0k)
Digital Interface	Serial Interface (UART) Transmit (Tx): 3.3V TTL Receive (Rx): 3.3V TTL
Warranty	2 years for the lamp, 1 year for the sensor, pump, electronics, and housing
Operating Temperature	-4° F to +131° F (-20° C to +55° C)
Humidity	0 to 95% RH non-condensing
EMI/RFI	Highly resistant to EMI/RFI Compliant with EMC Directive 2004/108/EC
Package	316 stainless steel Spray watertight for IP-65 rating Dust membrane for sensor front protection
Size	1.92" D x 5.94" L (49mm x 150.8mm)
Weight	19.4 oz (< 550g)
Certification	
ATEX	II 1 G EX ia IIC T4 and 1M1 Ex ia I
UL/CSA	Class I, Div. 1, Groups A B C D T4
IECEX	Ex ia IIC T4 Ga and Ex ia I

## ORDERING OPTIONS

### RAEGuard 2 Fixed Sensor Head Includes:

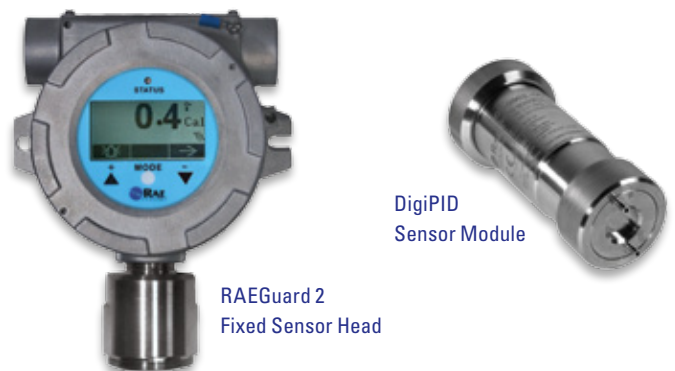
- Explosion proof stainless steel enclosure with LCD display, integrated sampling pump and relays, digital connector for external sensors
- Magnetic key

### DigiPID Sensor Module Includes:

- Complete stainless steel PID sensor module with UV lamp and digital connector for use with RAEGuard 2
- Choice of detection range 0.01 to 100 ppm, 0.1 to 1000 ppm, or 1 to 1000 ppm
- DigiPID maintenance kit

### RAEGuard 2 PID Kit Includes:

- All RAEGuard 2 Fixed Sensor Head contents and all DigiPID contents as stated above



RAEGuard 2  
Fixed Sensor Head

DigiPID  
Sensor Module



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