RAEGuard 3

Safe and Efficient Flammable, Toxic And Oxygen Detector

Dedicated to Your Safety

RAEGuard 3

RAEGuard 3 Series is Honeywell's masterpiece detector of toxic and flammable gas that represents advanced technology and development potential in the future. It provides users with safer, more stable, more reliable and more effective field transmitter, and can be applied in indoor and outdoor hazardous environments, to monitor the dangerous degree of hazardous gases in real time, so as to rapidly and effectively protect the safety of the installation site and production personnel.

The core of RAEGuard 3 — the sensors passed through strict selection and can ensure reliable and stable operation of the transmitter. Combustible gas detector uses catalytic sensor technology with long life (> 5 years) and high anti-poisoning. Toxic and Oxygen detectors adopt a variety of compensatory electrochemical sensor technology, especially Oxygen detector can avoid zero-free (nitrogen) calibration. At the same time, NDIR infrared detection technology with long life, anti-poisoning and Oxygen-free NDIR infrared detection technology allows RAEGuard 3 to be used in a wider and more harsh gas detection environment.

To Your Safety
- All adopt advanced sensor technology
- Wider compensation for temperature and environmental factors keeps the instrument reliable and stable.
- Redundant design to ensure no "false alarm"
- Clear indications of status can perceive the degree of environmental hazards even at long distances.
- Optional integrated visible and sound alarm, light and sound constantly remind, alarm signal will not be ignored
- Optional built-in surge protection device to make sure outdoor installation of "worry-free"
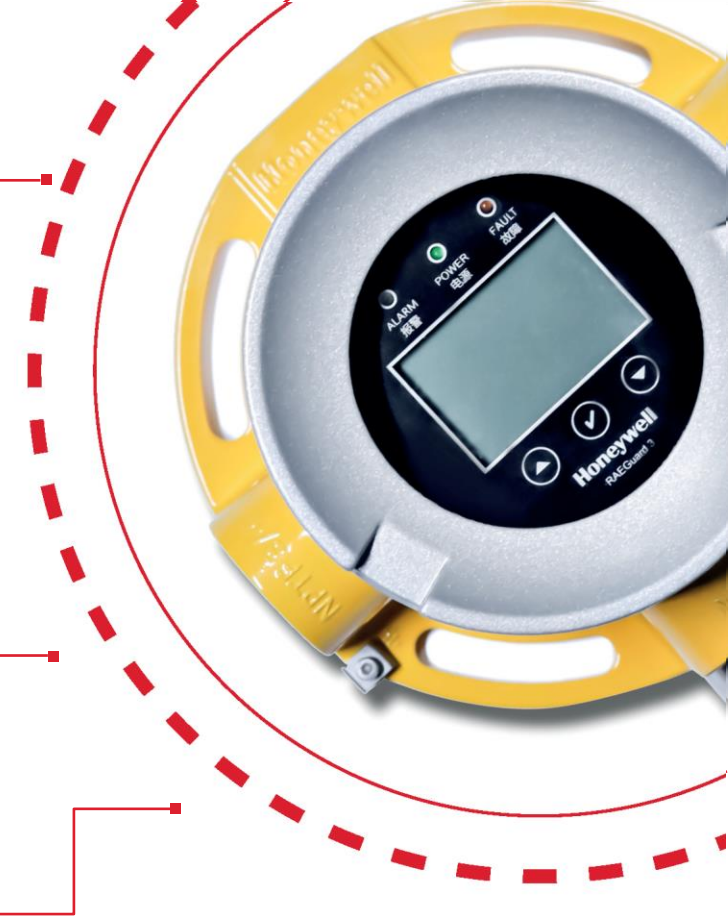- IP66/67
- TUV SIL2

Self-Management
- Life expiration reminder
- Calibration period expiration reminder
- Alarm, STEL/TWA, fault, warning and other event reminders
- Fault code reminder

Universal Transmitter
- Simplified and reduced cost of installation
- Decreased material management
- Reduced user's spares and training
- Minimal maintenance required

Easy to Use
- Easy read backlit LCD with text, bar graph, digits and icons, support EN and CN
- 3 high-recognized and visible LED status indicators
- 3-wire 4-20mA current output can be fine-tuned to avoid the signal attenuation caused by wiring
- Optional HART® communications as standard for remote diagnostics/configuration
- Optional Bluetooth® for easy remote operation and maintenance via mobile app
- RS485 Modbus RTU for multi-drop networking and remote real-time monitoring
- Local or remote sensor installation options

Cost Effective

- Auto-identify sensor gas types, allow full scale range setting of toxic and Oxygen detectors
- Hot swap toxic and Oxygen sensor module on site
- Fully configurable via non-intrusive magnetic switches by single person
- Auto-inhibit during maintenance

Easy to Install

- Integral mounting plate or optional rewarded backboard mount kit for easy wall or pipe mounted
- 3/4"NPT M, 1/2"NPTM/F, G3/4"M/F, G1/2"F and M20 F varied glands selectable
- Flip-up PCB block removes to give access to terminal area
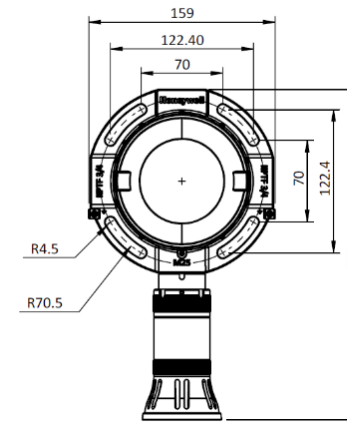- Removable plug/socket type terminal blocks for ease of wiring

Certification

- China: Ex, CPA, CCCF
- EU: CE, EMC, ATEX
- IECEx
- TUV SIL2

Applications

- Oil & Gas
- Chemical industry
- Oil & Gas Storage and Transportation
- Food/beverage
- Refineries
- Power plants
- Steel plants
- Laboratory
- Waste water facilities
- Utilities
- Pharmaceutical plant
- Chemical Storage
- Automotive industry

Installation
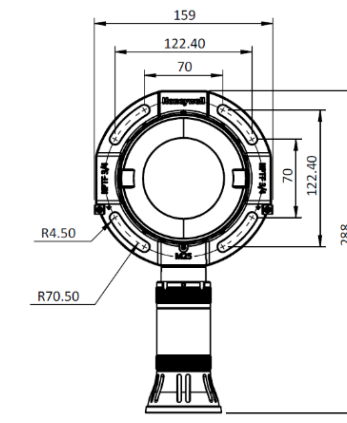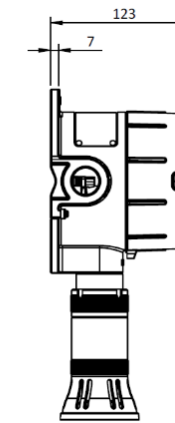
Installation Dimension

RAEGuard 3 Series detector is designed for use in potentially explosive atmosphere. The installation of detectors should ensure their explosion-proof performance and strictly follow the relevant national standards, to use industrial-grade armored cables and explosion-proof glands and conduits.
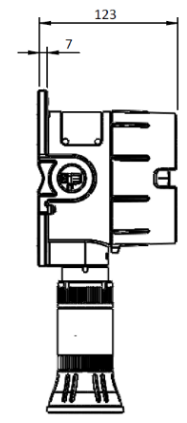
Use 0.5mm^2 (20AWG)to 2.5mm^2(13AWG) cross sectional area cable as needed to ensure minimum operating voltage at the detector,depending on installed cable length.

Dimension of RAEGuard 3 Toxic and Oxygen
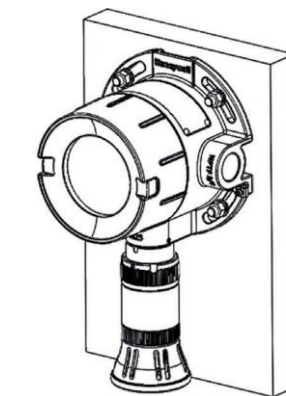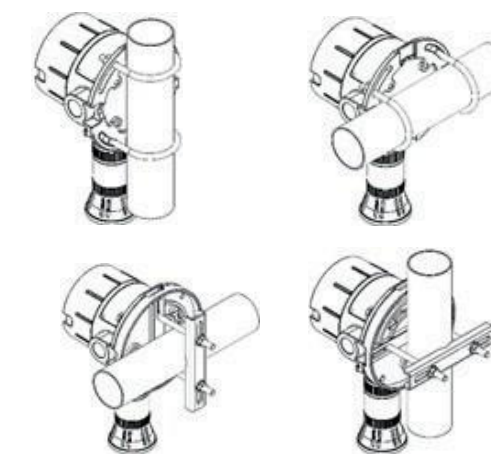
Dimension of RAEGuard 3 Flammable and NDIR
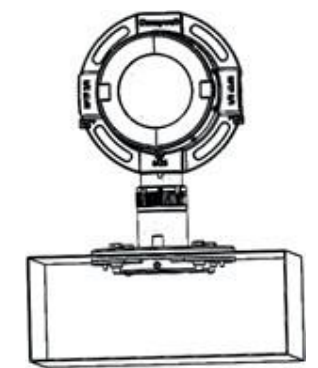
Unit: mm

Mounted Mode

Wall Mounted

Vertical or horizontal pipe mounted
(Mounting plate kit can be selected directly)

Duct Mounted

Other Accessories

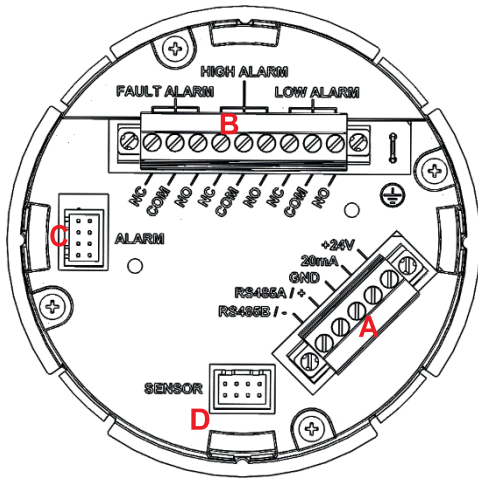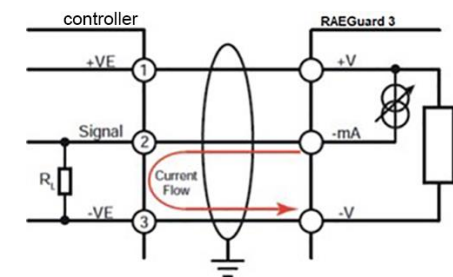| Sunshade/delug | Collecting Cone | Gas Flow Adapter | Mounting Plate Kit |

Electrical

RAEGuard 3 transmitter only provides source current output. The maximum supported cable length can refer to the recommended values in the User's Manual.

RAEGuard 3 Wiring Terminals

Terminals	Identification	Definition	Remarks
A	+24V	+VE Supply (16~32VDC)	Controller
	4-20mA	4-20mA current & HART output	
	GND	-VE Supply	
	RS485A/+	MODBUS A(+)	MODBUS RTU
	RS485B/-	MODBUS B(-)	
B	LOW ALARM-NO	Low Alarm - Normally Open	Note: If the function is not purchased at the time of ordering, there is no terminal.
	LOW ALARM-COM	Low Alarm - Common	
	LOW ALARM-NC	Low Alarm - Normally Closed	
	HIGH ALARM-NO	High Alarm - Normally Open	
	HIGH ALARM-COM	High Alarm – Common	
	HIGH ALARM-NC	High Alarm - Normally Closed	
	FAULT ALARM-NO	Fault - Normally Open	
	FAULT ALARM-COM	Fault – Common	
	FAULT ALARM-NC	Fault - Normally Closed	
C	ALARM	External SP-07J/07A	Optional
D	SENSOR	Connect with sensor	

RAEGuard 3 Source Configuration

Technical specifications

RAEGuard 3 Gas Detector

Use	Universal transmitter with standard configuration of 3-wire, 4-20mA and RS485 MODBUS output for use with a wide range of applications for the detection of flammable, toxic and Oxygen gas hazards.

Electrical parameters

Input Voltage Range	16-32VDC (24VDC nominal)
Max Power Consumption	Electrochemical Cells: 5.5 watts; Catalytic or NDIR: 7.5 watts
Current Output	Completely configurable 4~20mA (source type) with optional HART® 7.2 protocol as following as default configurations of current output. 1mA — Fault 2mA — Inhibit (during configuration or setup) 3mA — Warning 4mA~20mA — Normal 22mA — Overrange Note: When the current output is less than 3mA, HART communication will not work properly.
Terminals	5 terminals (14 terminals for use with relay output), wire diameter 0.5mm² (20AWG) to 2.5mm² (13AWG)
Relays	3 x 2A@30VDC. Selectable normally open or normally closed and energised/de-energised(programmable) and latch/non-latch Alarm relays default energised/non-latch. Fault relay default energised/non-latch
Communication	RS485, Modbus RTU *Optional Bluetooth

Construction

Transmitter Housing Material	Aluminum Alloy or 316 Stainless Steel
Sensor Housing Material	316 Stainless Steel
Weight (Approx)	Aluminum Alloy: 3.0kg; Stainless Steel: 5.0kg
Mounting	Integral mounting plate with 4 x mounting holes suitable for M8 to fit onto Wall or Pipe
Entries	2 x 3/4" NPT cable/conduit entries and 1 x M25 sensor entry. 1 x plug supplied for use for only 1 entry used. Seal to maintain IP rating

Performance****

Repeatability	<2%
Response Time(T90)	Depending on the gas being detected

Certification

European	ATEX: LEL/NDIR: CE2460 ⟨Ex⟩ II 2G Ex db IIC T6 Gb Ta = -40°C to +65°C Toxic and Oxygen: CE2460 ⟨Ex⟩ II 2G Ex db ia IIC T6 Gb Ta = -20°C to +55°C
International	IECEx: LEL/NDIR: Ex db IIC T6 Gb Ta = -40°C to +65°C Toxic and Oxygen: Ex db ia IIC T6 Gb Ta=-20°C to +55°C
China	LEL/NDIR: Ex d IIC T6 Gb Ex tD A21 IP66 T85°C Toxic and Oxygen: Ex d ia IIC T6 Gb Ex tD A21 IP66 T85°C CCCF, CPA
EMC	EN50270:2015, IEC 61000-4-5
Performance**	IEC60079-29-1 IEC 61508 (SIL Assessment, SIL2)
Surge Immunity	Optional Surge Protection Device, Compliance with GB/T 17626.5-2008/IEC61000-4-5:2005, Meets "Installation Class 4"

Environmental

IP Rating	Toxic and Oxygen: IP66/67 LEL/NDIR: IP66
Operating Temperature***	-40°C~+70°C
Operating Humidity	LEL/NDIR: 0~95%RH (Non-condensing) Toxic and Oxygen: 15%~95%RH (Non-condensing)
Operating Pressure	90~110kPa
Storage Conditions	-20°C~+50°C, 45-75%RH(Non-condensing), in clean air

Gas	Default Range	Selectable Full Scale Range	Resolution	Lower Detectable Limit	Default Cal Point	Selectable Cal Gas Range	Response Time (T90)	Accuracy	Default Alarm 2	Default Alarm 1	STEL	TWA
O_2	30.0%vol	25.0~30.0%vol	0.1%vol	-	20.9%vol	20.9%vol (Fixed)	<20s	<±0.7%vol	23.5%vol ▲	19.5%vol ▼	n/a	n/a
H_2S	100ppm	20.0~200.0ppm	0.1ppm	0.5ppm	50ppm	30%~70% Of Full Scale Range	<25s	<±5ppm	20ppm ▲	10ppm ▲	5ppm	1ppm
CO	500ppm	50~1000ppm	1ppm	3ppm	250ppm		<25s	<±5ppm	50ppm ▲	25ppm ▲	27ppm	18ppm
LEL	100%LEL	100%LEL	1%LEL	-	50%LEL		<25s	<±5%LEL	50%LEL ▲	25%LEL ▲	n/a	n/a
*CH_4-IR	100%LEL	100%LEL	1%LEL	-	50%LEL		<30s	<±5%LEL	50%LEL ▲	25%LEL ▲	n/a	n/a
NH_3-L	100ppm	20.0~100.0ppm	0.1ppm	2ppm	50ppm	20%~80% Of Full Scale Range	<60s	<±5ppm	70ppm ▲	35ppm ▲	35ppm	25ppm
Cl_2	10ppm	5.0~50.0ppm	0.05ppm	0.1ppm	5ppm		<40s	<±1ppm	6ppm ▲	3ppm ▲	1ppm	0.5ppm
SO_2	10ppm	10.0~50.0ppm	0.1ppm	0.2ppm	10ppm		<25s	<±0.5ppm	10ppm ▲	5ppm ▲	3.8ppm	1.9ppm
C_2H_3Cl	100ppm	10.0~100.0ppm	0.1ppm	0.3ppm	50ppm		<90s	<±10%	10ppm ▲	5ppm ▲	7.6ppm	3.8ppm
*H_2	1000ppm	1000ppm	1ppm	2ppm	200ppm		<90s	<±10% or <±5%FS	400ppm ▲	200ppm ▲	n/a	n/a

Remarks:
* RAEGuard 3 will provide users more communication interfaces and gas types in the future, such as Bluetooth and wireless. For availability, please contact Honeywell Analytics.

** Availability for SIL2 certificate, please contact Honeywell Analytics.

*** Catalytics and NDIR-CH_4 sensor can work continuously at -40°C ~ +70°C; toxic and oxygen sensor can work continuously at -20°C ~ +55°C, intermittently at -40°C ~ +70°C (The accuracy and response time of sensors operating in this temperature range will be affected, and long-term operation may lead to sensor sensitivity decline or even damage.)

**** The performance characteristics of the products mentioned above are typical results tested in an environment with a temperature 20°C and a humidity of 50% RH. When calibrating, use the calibration cap and recommended flow for detection. If the sunshade/deluge cover is used instead or the detection is carried out at low temperature, the response time will be slowed down.

FGM-6a00b, "a" indicates sensor type, includes 1(LEL), 2(NDIR), 3(EC). "b" indicates material of main housing, includes S (stainless steel) and blank(aluminum alloy).

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FUTURE
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—

Honeywell