

# Rosemount™ 936

## Open Path Toxic Gas Detectors



# Typical applications

**Note**

Typically used in perimeter monitoring and fence control

- Offshore platforms and floating production storage and offloading (FPSOs)
- Petrochemical plants
- Chemical processing plants
- Gas filling and distribution terminals
- Gas transport and pipelines
- Agriculture
- Food and beverage
- Waste management
- Water treatment
- Pharmaceutical
- Large storage areas and buildings

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## Features and benefits

- One person installation and low maintenance
- Factory calibrated
- Accurate and reliable high-speed response in under 3 seconds
- Automatic gain control ensures accurate detection in challenging conditions with up to 95 percent signal obscuration
- Three-year warranty
- High false alarm immunity
- Heated optics for operation in challenging conditions
- Easy to use, field configurable via HART® or RS-485 Modbus®
- High reliability-MTBF-minimum 100,000 hours

## Ordering information

You can order the Rosemount 936 as separate parts: source (PN 936TXT00XXXX), detector (PN 936RT12XXXXX), and accessories.



- Accurate and reliable high-speed response in under three seconds
- Utilizes ultraviolet technology
- High immunity to false alarms
- Easy installation and maintenance

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## Online product configurator

Many products are configurable online using our Product Configurator. See [Emerson.com](https://www.emerson.com) to start. With this tool's built-in logic and continuous validation, you can configure your products more quickly and accurately.

## Model codes

Model codes contain the details related to each product.

Exact model codes will vary; an example of a typical model code is shown in [Source \(Transmitter\)](#) and [Detector \(Receiver\)](#).

### Source (Transmitter)

936T1T00F002SA1

### Detector (Receiver)

936R1T262SA1

## Specifications and options

See [Specifications](#) for more details on each configuration.

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment.

## Source (Transmitter)

### Required model components

#### Model

Code	Description
936	Toxic Open Path Gas Detector Source (Transmitter)

**Transmitter range**

Code	Description
T1	Transmitter - Range of 17 ft. (5 m) to 52 ft. (16 m)
T2	Transmitter - Range of 46 ft. (14 m) to 132 ft. (40 m)
T3	Transmitter - Range of 115 ft. (35 m) to 200 ft. (60 m)

**Gas calibration**

Code	Description
T00	Transmitter

**Housing style / conduit**

Code	Material	Measurement
2S	Stainless steel	¾-in. NPT
4S	Stainless steel	M25

**Product certifications**

Code	Description
A1	ATEX/IECEX/UKCA
A3	CSA C/US
E2	InMetro (pending)
EM	TR CU (EAC) (pending)
EP	Republic of Korea

**Detector (Receiver)****Required model components****Model**

Code	Description
936	Toxic Open Path Gas Detector (Receiver)

**Receiver selection**

Code	Description
R1	Receiver

**Gas calibration**

Code	Description
T26	Hydrogen sulfide (receiver)
T27	Ammonia (receiver)

**Housing style / conduit**

Code	Material	Measurement
2S	Stainless steel	¾-in. NPT
4S	Stainless steel	M25

**Product certifications**

Code	Description
A1	ATEX/IECEX/UKCA
A3	CSA C/US
E2	InMetro (pending)
EM	TR CU (EAC) (pending)
EP	Republic of Korea

# Specifications

## General specifications

### Detected gases

- Hydrogen sulfide (H<sub>2</sub>S) and Sulfur dioxide (SO<sub>2</sub>)
- Ammonia (NH<sub>3</sub>)

**Table 1: Detection Distance Range**

Detector	Source	Minimum installation distance	Maximum installation distance
<b>H<sub>2</sub>S / SO<sub>2</sub></b>			
RT126XXX	T1T00XXX	17 ft. (5 m)	52 ft. (16 m)
RT126XXX	T2T00XXX	46 ft. (14 m)	132 ft. (40 m)
RT126XXX	T3T00XXX	115 ft. (35 m)	200 ft. (60 m)
<b>NH<sub>3</sub></b>			
R1T127XXX	T1T00XXX	17 ft. (5 m)	52 ft. (16 m)
R1T127XXX	T2T00XXX	46 ft. (14 m)	132 ft. (40 m)
R1T127XXX	T3T00XXX	115 ft. (35 m)	200 ft. (60 m)

### Response time

< 3 sec

### Spectral response

200 to 300 nm

### Sensitivity range

Full scale	Warning	Alarm
500 ppm/m	100 ppm/m	300 ppm/m

### Field of view

Line of sight

### Alignment tolerance

±1 degree

### Minimum detectable gas volume

50 ppm/m

### Temperature range

-67 °F (-55 °C) to 149 °F (65 °C)

### Immunity to false alarm

Does not produce a false alarm and is not influenced by solar radiation, hydrocarbon flames, or other external infrared radiation sources.

## Electrical specifications

### Operating voltage

24 Vdc nominal (18-32 Vdc)

### Typical power consumption with heated optics

Detector: 135mA

Source: 150mA

### Electrical input protection

The input circuit is protected against voltage-reversed polarity, voltage transients, surges, and spikes, according to EN50270.

### Electrical outputs

- 0-20 mA current output: The 0-20 mA is an isolated sink option. You can also configure this output as source. The maximum permitted load resistance is 600 Ω.
- Communication network: The detector is equipped with an RS-485 communication link that can be used in installations with computerized controllers. Communication is compatible with the Modbus® protocol.
  - This protocol is standard and widely used.
  - It enables continuous communication between a single standard Modbus controller (master device) and a serial network of up to 247 detectors.
  - It enables connection between different types of Rosemount detectors or other Modbus devices to the same network.
- HART® protocol: a digital communication protocol used to communicate between intelligent field instruments and the host system. Through the HART protocol, the detector can:
  - Display setup.
  - Reconfigure setup.
  - Display and determine the detector status.
  - Perform detector diagnostics.
  - Troubleshoot.

## Mechanical specifications

### Enclosure

The detector, source, and tilt mount are stainless steel, 316 electrochemical, and passivized coating.

### Explosion proof

ATEX, IECEx, and UKCA

Ex II 2(2) G D

Ex db eb ib [ib Gb] IIB+H2 T4 Gb

Ex tb [ib Db] IIIC T135 °C Db

### Water and dust tight

IP66 and IP68



IP68 is rated for 7 ft. (2 m) depth for 45 minutes.

NEMA® 250 Type 6p

### Electrical connection

Two options, specified at time of order:

- 2 x M25 for International Organization on Standardization (ISO)
- 2 x ¼-in. -14 NPT conduits

### Dimensions

- Detector: 10.5 in. (267 mm) x 5.1 in. (130 mm) x 5.1 in. (130 mm)
- Source: 10.5 in. (267 mm) x 5.1 in. (130 mm) x 5.1 in. (130 mm)
- Tilt mount: 4.7 in. (119 mm) x 4.7 in. (119 mm) x 5.5 in. (140 mm)

### Weight

Detector: 11 lb.

Source: 11 lb.

Tilt mount: 4.2 lb. (1.9 kg)

## Environmental specifications

The Rosemount 936 system is designed to withstand harsh environmental conditions.

The source and detector units compensate for adverse conditions while maintaining accuracy.

### High temperature

The Rosemount 936 is designed to meet DNVGL-CG-0039, class D.

**Operating temperature** 149 °F (65 °C)

**Storage temperature** 149 °F (65 °C)

### Low temperature

The Rosemount 936 is designed to meet DNVGL-CG-0039, Class D.

**Operating temperature** -67 °F (-55 °C)

**Storage temperature** -67 °F (-55 °C)

### Humidity

The Rosemount 936 is designed to meet DNVGL-CG-0339, class B.

### Enclosure

The Rosemount 936 is designed to meet DNVGL-CG-0339, class C.

### Water and dust

- IP68 per EN60529
- IP66 per EN60529

**Dust** Completely protected against dust.

**Liquids** Protected against immersion between 5.9-in. (15 cm) and 3.3 ft. (1 m) in depth. Protected against water jets from all directions.

**Vibration**

The Rosemount 936 is designed to meet DNVGL-CG-0339, class B.

**Electromagnetic compatibility (EMC)**

This product is in conformance with EMC per EN50270.

<b>Radiated emission</b>	EN55022
<b>Conducted emission</b>	EN55022
<b>Radiated immunity</b>	EN61000-4-3
<b>Conducted immunity</b>	EN61000-4-6
<b>Electrostatic discharge (ESD)</b>	EN61000-4-2
<b>Burst</b>	EN61000-4-4
<b>Surge</b>	EN61000-4-5
<b>Magnetic field</b>	EN61000-4-8

To fully comply with EMC directive 2014/30/EU and protect against interference caused by radio frequency interference (RFI) and electromagnetic interference (EMI), the cable to the detector must be shielded, and the detector must be grounded. Ground the shield at the detector end.

## Accessories

Model	Product Description
888270	Tilt Mount
799255	Wall Mount
799225	Pole Mount (U-Bolt 4-5")
888140	Pole Mount (U-Bolt 2-3")
888355-2	Duct Mount
888931	Air Shield
888263	Protective Cover
888897-1	936 H2S Comm Kit including Auxliery Harness IS/RS485 and HART
888897-2	936 NH3 Comm Kit including Auxliery Harness IS/RS485 and HART
888280-2	Check Filter NH3
888280-1	Check Filter H2S
888820	Auxiliary Harness IS/RS 485 and HART
888810	HART Handheld Diagnostic Kit
794079	USB / RS485 Harness Converter Kit

# Product certification

## ATEX, IECEx and UKCA

Ex II 2(2)G D

Ex db eb ib [ib Gb] IIB+H2 T4 Gb

Ex tb [ib Db] IIIC T135 °C Db

$T_a = -55\text{ °C to }+65\text{ °C}$

## SIL-2

The Rosemount 936 is TUV approved for SIL-2 requirements per IEC61508.

The alert condition according to SIL-2 can be implemented by alert signal via 0-20 mA current loop.

## TR CU (EAC) - pending

1Ex db eb ib [ib Gb] IIB + H2 T4 Gb X

Ex tb [ib Db] IIIC T135 °C Db X

$-55\text{ °C} \leq T_a \leq +65\text{ °C}$

## INMETRO - pending

Ex db eb ib [ib Gb] IIB+H2 T4 Gb

Ex tb [ib Db] IIIC T135 °C Db

## CSA C/US

The Rosemount 936 is approved per CSA C/US for hazardous and ordinary locations:

### Canada

Ex db eb ib [ib Gb] IIB+H2 T4 Gb

Ex tb [ib Db] IIIC T135°C Db

$T_a = -55\text{ °C to }+65\text{ °C}$

### USA

Class I Zone 1 AEx db eb ib [ib Gb] IIB+H2 T4 Gb

Zone 21 AEx tb [ib Db] IIIC T135°C Db

$T_a = -55\text{ °C to }+65\text{ °C}$



The Rosemount 936 is a "Class 1 Laser Product" per IEC 60825-1: 2014 ed. 05.

## Performance Approval

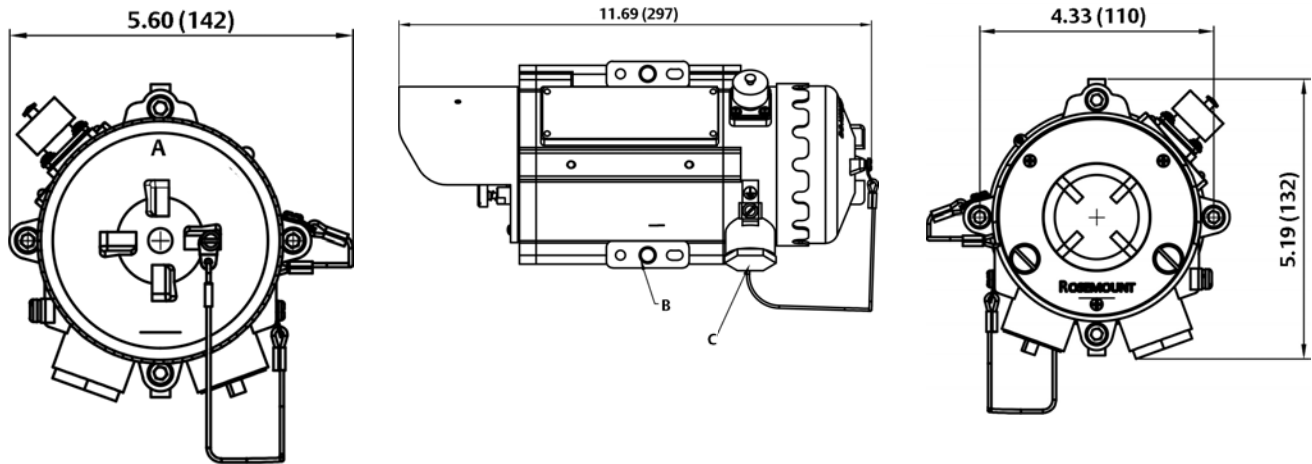
**ANSI/ISA-92.00.04-2014**

**UL 920004: 2014**

# Dimensional drawings

**Figure 1: Gas Detector Assembly**

Dimensions are in inches [millimeters].

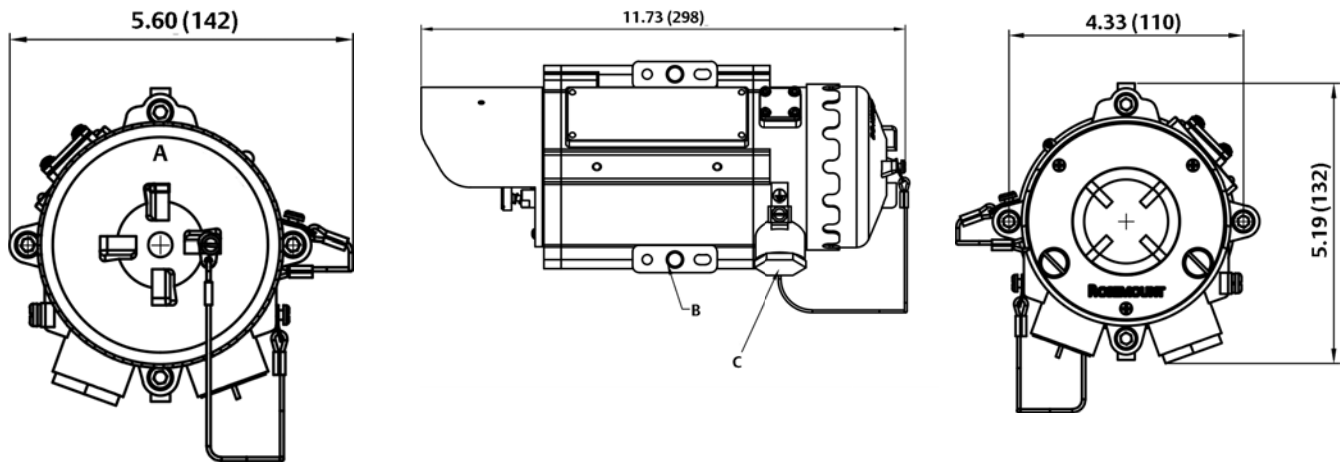


- A. Do not open while energized
- B. M10 x 1.5
- C. Two conduit entry locations, M25 x 1.5 mm ISO or 3/4-in. NPT.

<b>Material</b>
Stainless steel - 316L
<b>Weight</b>
11 lb. (5 kg) approximately

**Figure 2: Gas UV Source Assembly**

Dimensions are in inches [millimeters].



- A. Do not open while energized
- B. M10 x 1.5
- C. Two conduit entry locations, M25 x 1.5 mm ISO or 3/4-in. NPT.

<b>Material</b>
Stainless steel - 316L
<b>Weight</b>
11 lb. (5 kg) approximately

For more information: [Emerson.com](https://www.emerson.com)

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