

# Smart Gas Detector with Explosion Proof Technology

## DA - 100



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## 1. Introduction

### 1.1 Product Overview:

DA-100 is an ideal Gas detector for effectively preventing gas leak incidents in various industrial areas. DA-100 is designed as a transmitter without display readings. DA-100 serves as an indispensable device for ensuring the smooth operation of industries while prioritizing the safety of both individuals and the environment. By utilizing the DA-100, industries can maintain optimal performance while minimizing risks associated with gas leaks, thereby promoting a secure working environment and environmental protection. It accomplishes this by converting the detected gas signals into a standardized electrical current, which is then transmitted externally. Whenever the electrochemical sensor in DA-100 comes into contact with toxic gas, a chemical reaction takes place on the sensor's surface, resulting in an electrolytic current proportional to the concentration of the reacting gas.

### 1.2 Product Description

The DA-100 provides complete gas monitoring system by converting the digital signal into a standard current output signal ranging from 4 mA to 20 mA. These signals are then sent externally for further use. The 4mA to 20mA standard current signal is transmitted to either a gas leak alarm device (GMS-1000/2500) or a controller such as PLC, DDC, MMR, and so on. This facilitates the creation of an independent or integrated gas monitoring system.

DA-100 is a digital transmitter based on a microprocessor. The various digital artificial intelligence functions enabled by the microprocessor expand the utility range of the gas detector and enhance convenience and efficiency in maintenance and management. This allows for the establishment of a more convenient, efficient, and comprehensive gas monitoring environment. The electrochemical sensor of DA-100 undergoes a chemical reaction (oxidation, reduction) on its surface when it comes into contact with toxic gas. This reaction results in an electrolytic current that is proportional to the concentration of the gas. In the case of combustible gas, it comes into contact with the sensor and undergoes combustion, generating a proportional electromotive force.

## 2. Product Features

- **Explosion Proof**

This explosion-proof gas detector is specifically engineered to operate safely in hazardous environments. It has specialized technology and robust construction methods to withstand and contain internal explosions. This device is equipped with explosion-proof enclosures, which effectively prevent the release of sparks, flames, or hot gases that could pose a danger. They are also equipped with highly sensitive gas sensors that can detect the presence of flammable or explosive gases in the surrounding environment.

- **Digital Process**

Utilizing a microprocessor-based digital process, the DA-100 incorporates a range of artificial intelligence functions, enabling it to perform gas detection functions that are more convenient, accurate, and efficient.

- **Analog 4-20mA Transmitter**

With the analog 4-20mA output, the device enables stable and long-distance signal transmission of up to 2.5 kilometers. This ensures reliable communication and allows for extended signal transmission distances while maintaining signal integrity.

- **Calibration Function**

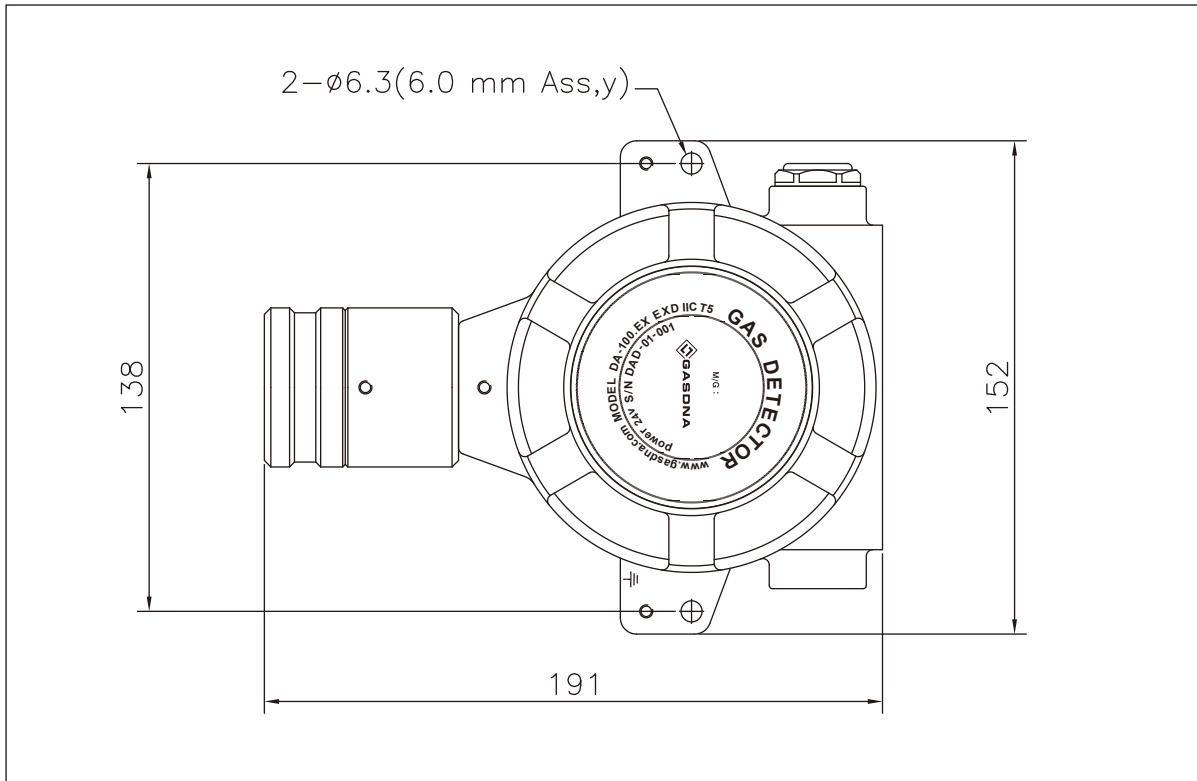
This device can be calibrated as per requirement and types of gases. This device has very easy calibration process that makes the maintenance and operation easy. Calibration ensures that the gas detector maintains accurate and reliable measurements over time. It is typically recommended to calibrate gas detectors regularly

### 3. Product Specifications

Product Code	DA-100
Detection Method	Diffusion
Detection Principle	Refer the Gas list Section below
Explosion Protection	Explosion Proof
Gas groups	11A, 11B, 11C
Response speed & Accuracy	Within 20sec, 90%, full scale, $\leq \pm 2\%$ / full scale
Optional Function	Calibration concentration, detection range setting
Measurement Range	Refer the Gas list Section below
Input Power	DC 20~30V, 100mA
External Output	4 ~ 20mA/Full Scale - 2.5km transmission
Detector Output	4-20 mA source or sink selectable 2mA = Fault 4-20 mA = Normal gas range 24 mA = Over range
Ambient Temperatures & Humidity Range	-40°C ~ 65°C, 5 ~ 95% RH (Non-condensing)
Signal Wire	CVVS & CVVSB 1.5sq x 3 wire - shield type
Wire Conduit	3/4" NPT or 1/2"PF
Installation Method & External Material	Wall or Pipe Mounting, Cast Aluminum Alloy
Explosion Proof approval & IP ratings	Ex d IIC T6(IP66), Ex Td A21 T85°C IP66 (KC) EU-TYPE Examination Certificate (ATEX) IECEX Certificate of Conformity (IECEX)
Zones	Certified for use in Zone 1 or Zone 2
Weight	2200g

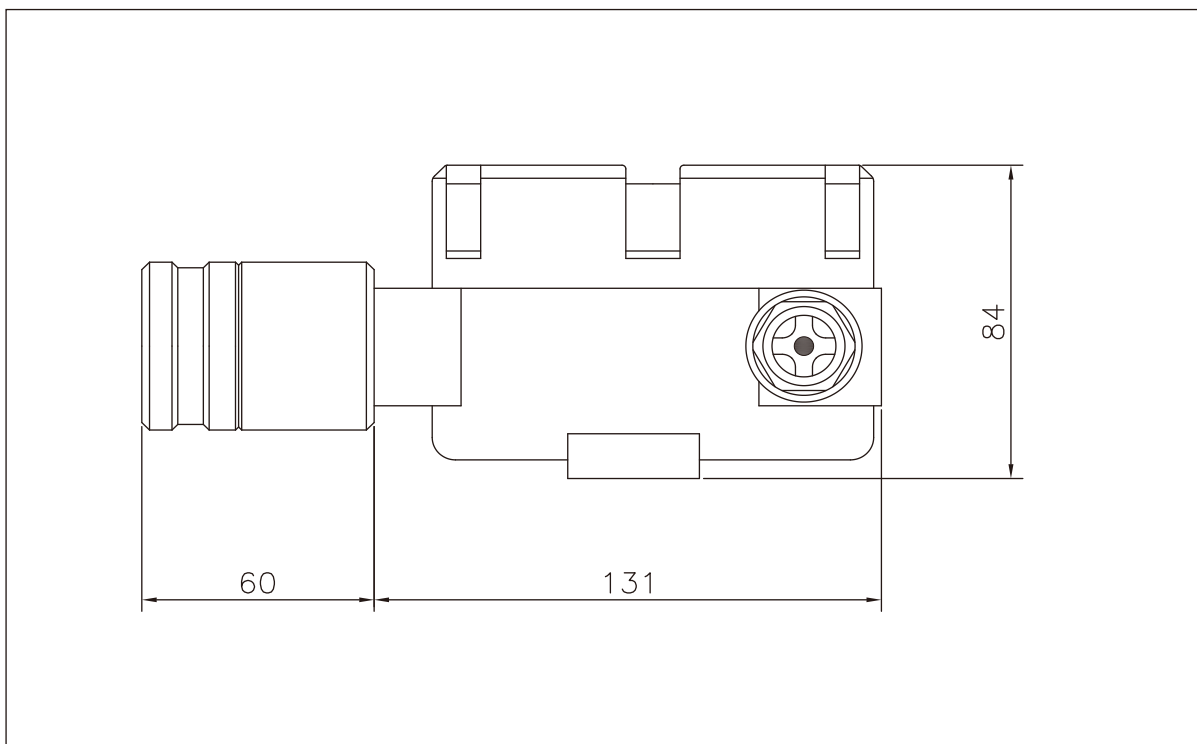
## 4. Product Diagram

### 4.1 Front View



Unit: mm

### 4.2 Side View



Unit: mm

## 5. Product Model No. & Gases Names

Gases Names	Chemical Formula	Range	Product Codes	Sensor Types
Acetylene	C <sub>2</sub> H <sub>2</sub>	0~10.0 PPM	DA-100-C <sub>2</sub> H <sub>2</sub>	Electrochemical
Ammonia	NH <sub>3</sub>	0 - 100 ppm	DA-100-NH <sub>3</sub>	Electrochemical
Arsine	AsH <sub>3</sub>	0 - 3.0 ppm	DA-100-AsH <sub>3</sub>	Electrochemical
Boron Trichloride	BCl <sub>3</sub>	0 - 10.0 ppm	DA-100- BCl <sub>3</sub>	Electrochemical
Boron Trifluoride	BF <sub>3</sub>	0-10.0 PPM	DA-100- BF <sub>3</sub>	Electrochemical
Bromine	Br <sub>2</sub>	0-2.0 PPM	DA-100-BR <sub>2</sub>	Electrochemical
Carbon Monoxide	CO	0-100 PPM	DA-100-CO-L	Electrochemical
Carbon Monoxide	CO	0-500 PPM	DA-100-CO-M	Electrochemical
Chlorine	CL <sub>2</sub>	0~5.0 PPM	DA-100-CL <sub>2</sub>	Electrochemical
Chlorine Dioxide	CLO <sub>2</sub>	0~5.0 PPM	DA-100-CLO <sub>2</sub>	Electrochemical
Chlorine Trifluoride	ClF <sub>3</sub>	0-5.0 PPM	DA-100-ClF <sub>3</sub>	Electrochemical
Diborane	B <sub>2</sub> H <sub>6</sub>	0-1.0 PPM	DA-100-B <sub>2</sub> H <sub>6</sub>	Electrochemical
Dichlorosilane	H <sub>2</sub> SiCl <sub>2</sub>	0~10.0 PPM	DA-100- H <sub>2</sub> SiCl <sub>2</sub>	Electrochemical
Disilane	Si <sub>2</sub> H <sub>6</sub>	0~20.0 PPM	DA-100- Si <sub>2</sub> H <sub>6</sub>	Electrochemical
Ethylene	C <sub>2</sub> H <sub>4</sub>	0~10.0 PPM	DA-100-C <sub>2</sub> H <sub>4</sub>	Electrochemical
Ethylene Oxide	ETO	0~10.0 PPM	DA-100-ETO	Electrochemical
Fluorine	F <sub>2</sub>	0 -5.0 ppm	DA-100- F <sub>2</sub>	Electrochemical
Formaldehyde	CH <sub>2</sub> O	0~10.0 PPM	DA-100-CH <sub>2</sub> O	Electrochemical
Germane	GeH <sub>4</sub>	0~1.0 PPM	DA-100-GeH <sub>4</sub>	Electrochemical
Hydrazine	N <sub>2</sub> H <sub>4</sub>	0~2.0 PPM	DA-100-N <sub>2</sub> H <sub>4</sub>	Electrochemical
Hydrogen (% LEL)	H <sub>2</sub>	0~100%LEL	DA-100-H <sub>2</sub> -H	Electrochemical
Hydrogen (ppm)	H <sub>2</sub>	0~1000 PPM	DA-100-H <sub>2</sub> -L	Electrochemical

## 5. Product Model No. & Gases Names

Gases Names	Chemical Formula	Range	Product Codes	Sensor Types
Hydrocarbon(%LEL)	HC	0~100%LEL	DA-100-HC-CAT	Catalytic
Hydrogen Bromide	HBr	0~10.0 PPM	DA-100-HBr	Electrochemical
Hydrogen Chloride	HCL	0~10.0 PPM	DA-100-HCL	Electrochemical
Hydrogen Cyanide	HCN	0~20.0 PPM	DA-100-HCN	Electrochemical
Hydrogen Fluoride	HF	0~10.0 PPM	DA-100-HF	Electrochemical
Hydrogen Selenide	H2Se	0~5.0 PPM	DA-100-H2Se	Electrochemical
Hydrogen Sulfide	H2S	0~10.0 PPM	DA-100-H2S	Electrochemical
Methanethiol	CH4S	0~20.0 PPM	DA-100- CH4S	Electrochemical
Nitrogen Dioxide	NO2	0~30.0 PPM	DA-100-NO2	Electrochemical
Nitrogen Oxide	NO	0~100PPM	DA-100-NO	Electrochemical
Oxygen	O2	0~25.0 %VOL	DA-100-O2	Electrochemical
Ozone	O3	0~5.00 PPM	DA-100-O3	Electrochemical
Phosphine	PH3	0~5.00 PPM	DA-100-PH3	Electrochemical
Phosphorous Oxychloride	POCL3	0~1.00 PPM	DA-100-POCL3	Electrochemical
Silane	SiH4	0~10.0 PPM	DA-100-SiH4	Electrochemical
Sulfur Dioxide	SO2	0~20.0 PPM	DA-100-SO2	Electrochemical
Tetrahydrothiophene	THT	0~100 PPM	DA-100-THT	Electrochemical
Trimethyl Borate	TMB	0~500 PPM	DA-100-TMB	Electrochemical
Tetra Ethyl Ortho Silicate	TEOS	0~50.0 PPM	DA-100-TEOS	Electrochemical
Tungsten Hexafluoride	WF6	0~10.0 PPM	DA-100- WF6	Electrochemical
Vinyl Chloride	C2H3CL	0~10.0 PPM	DA-100-C2H3CL	Electrochemical