Smart Detector with LCD & Explosion Proof Technology

DA-600

GASDNA

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1.Introduction

1.1 Product Overview:

The DA-600 has a comprehensive range of advanced functions, making it an ideal detector for effectively preventing gas leak incidents in various industrial areas. With its cutting-edge features, the DA-600 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-600, industries can maintain optimal performance while minimizing risks associated with gas leaks, thereby promoting a secure working environment and environmental protection.

1.2 Product Description

The DA-600 provides the complete gas monitoring system by converting the digital signal into a standard current output signal ranging from 4 mA to 20 mA. This transformed signal is transmitted to different devices such as a PLC (Programmable Logic Controller), DDC (Direct Digital Control), and recorder. The DA-600 offers several features for communication and signal transmission. It provides an RS-485 communication signal and an alarm relay contact. Additionally, it has a DC 4~20mA standard output signal that can transmit signals over long distances of up to 2500 meters. Moreover, the RS-485 communication signal is capable of transmitting signals over long distances of up to 1000 meters.

2. Product Features

- **Non-Open Automatic Calibration Function:**

The non-open automatic calibration function of the device eliminates the need to open the detection unit cover during the calibration process. Instead, users can simply utilize a magnetic bar to touch the cover window, enabling calibration without physically accessing the internal components. This feature proves to be highly beneficial, especially in explosion-proof areas, as it ensures a safe and efficient calibration process without the need for opening the unit cover.

- **Explosion Proof**

This explosion-proof 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.

- **OLED Display**

  The main display of the device has organic light-emitting diode (OLED) technology, which allows for real-time visualization of gas density. This OLED display offers excellent visibility, even in low-light or dark conditions. Furthermore, multiple light-emitting diodes (LEDs) are utilized to indicate the operational status of the device, providing a clear and observable indication of its functioning during operation

- **Built-in HD (High Resolution) A/D Converter**

  The device is equipped with a high-resolution analog-to-digital (A/D) converter, ensuring precise and accurate conversion of analog signals into digital output. This technology enhances the accuracy of the output signal, resulting in reliable and trustworthy measurements.

- **User Programming**

  The device allows users to customize various settings, such as the detection range and other functions, according to their specific requirements and preferences. This feature provides flexibility and adaptability to meet diverse monitoring needs.

- **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.

- **Diverse Output Signals**

  This device provides a diverse range of output signals, facilitating seamless integration with various devices. It supports multiple output options, including an analog 4-20mA transmitter, Modbus RTU over RS-485 (optional), Highway Addressable Remote Transducer (HART), and a two-stage relay for alarms.

- **Alarm Output**

  The device also features an alarm output capability. It is equipped with a Single-Pole Single-Throw (SPST) relay contact that provides a two-step alarm functionality. This means it can trigger two separate alarm states, denoted as alarm 1 and alarm 2, enabling effective alerting and response to gas detection events.

- **Modbus RTU**

  The Modbus RTU protocol, implemented over RS-485, provides a robust and dependable method for signal communication. With Modbus RTU, the device supports reliable and long-distance signal transmission of up to 1.2 kilometers. This allows for effective communication across extended distances while ensuring signal integrity.

- **HART Function**

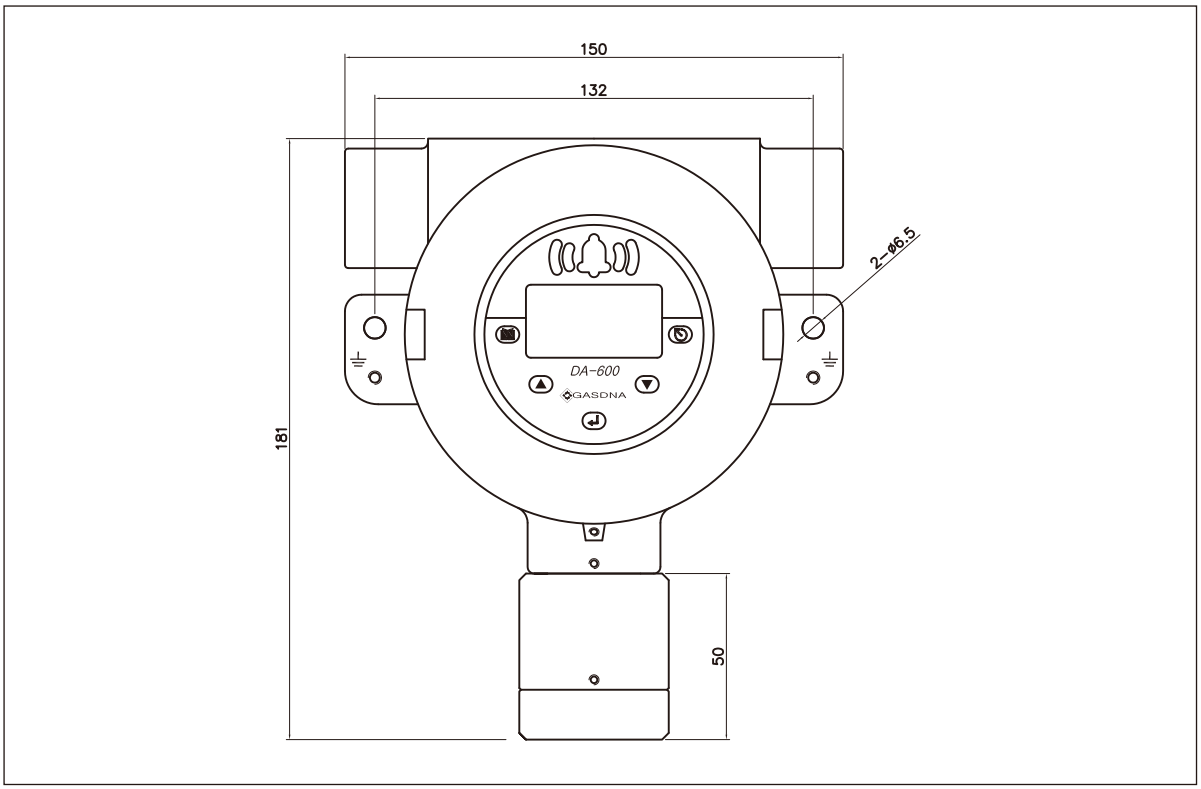
  DA-600 is compatible with Highway Addressable Remote Transducer (HART) communication. HART is a communication protocol widely used in process automation and enables bi-directional communication between the DA-600 and HART-compatible devices. This compatibility expands the connectivity options and allows for the exchange of information and configuration with HART-enabled devices.

3. Product Specifications

Product Code	DA-600
Detection Method	Diffusion
Detection Principle	Refer the Gas list Section below
Display	OLED 64x128 pixels
Explosion Protection	Explosion Proof
Gas groups	11A, 11B, 11C
Response speed & Accuracy	Within 20sec, 90%, full scale, ≤±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℃ ~ 65℃, 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℃ IP66 (KC) EU-TYPE Examination Certificate (ATEX) IECEx Certificate of Conformity (IECEx)
Relay Output	2 Step- Relay Contact ALARM-1 relay SPNO ALARM-2 relay SPNO
Communication Output (Optional)	Modbus RTU based on RS-485, HART Communication
Zones	Certified for use in Zone 1 or Zone 2 areas. (See area classifications section)
Dimension	150x181x98(mm)
Weight	2200g

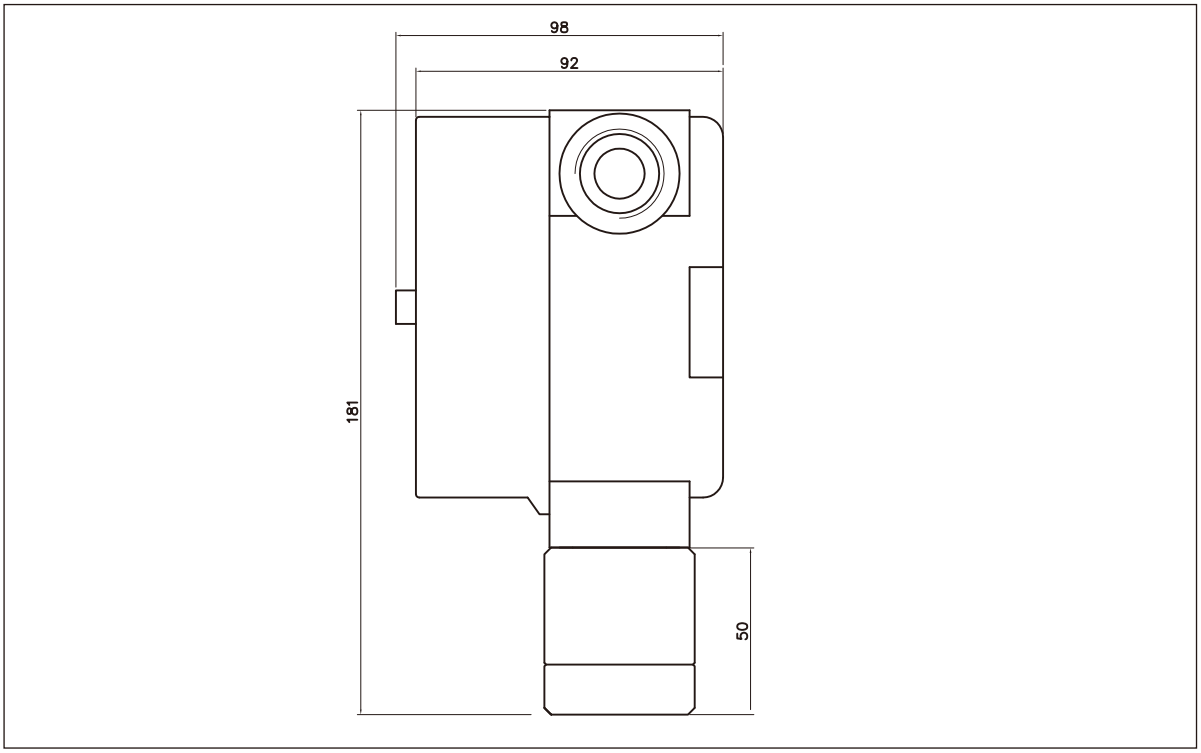
4. Product Diagram

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	C2H2	0~10.0 PPM	DA-600-C2H2	Electro Chemical
Ammonia	NH3	0 - 100 ppm	DA-600-NH3	Electro Chemical
Argon	Ar	0~100% VOL	DA-600-AR	TCD
Arsine	AsH3	0 - 3.0 ppm	DA-600-AsH3	Electro Chemical
Boron Trichloride	BCl3	0 - 10.0 ppm	DA-600- BCl3	Electro Chemical
Boron Trifluoride	BF3	0-10.0 PPM	DA-600- BF3	Electro Chemical
Bromine	Br2	0-2.0 PPM	DA-600-BR2	Electro Chemical
Carbon Dioxide	CO2	0~5000 PPM	DA-600-CO2-L-ND	NDIR
Carbon Dioxide	CO2	0 - 5.00%VOL	DA-600-CO2-M-ND	NDIR
Carbon Dioxide	CO2	0~100% VOL	DA-600-CO2-H-ND	NDIR
Carbon Monoxide	CO	0-100 PPM	DA-600-CO-L	Electro Chemical
Carbon Monoxide	CO	0-500 PPM	DA-600-CO-M	Electro Chemical
Chlorine	CL2	0~5.0 PPM	DA-600-CL2	Electro Chemical
Chlorine Dioxide	CLO2	0~5.0 PPM	DA-600-CLO2	Electro Chemical
Chlorine Trifluoride	ClF3	0-5.0 PPM	DA-600-ClF3	Electro Chemical
Diborane	B2H6	0-1.0 PPM	DA-600-B2H6	Electro Chemical
Dichlorosilane	H2SiCl2	0~10.0 PPM	DA-600- H2SiCl2	Electro Chemical
Difluoromethane	CH2F2	0~1000 PPM	DA-600-CH2F2-ND	NDIR
Disilane	Si2H6	0~20.0 PPM	DA-600- Si2H6	Electro Chemical
Ethylene	C2H4	0~10.0 PPM	DA-600-C2H4	Electro Chemical
Ethylene Oxide	ETO	0~10.0 PPM	DA-600-ETO	Electro Chemical
Fluorine	F2	0 -5.0 ppm	DA-600- F2	Electro Chemical
Formaldehyde	CH2O	0~10.0 PPM	DA-600-CH2O	Electro Chemical
Germane	GeH4	0~1.0 PPM	DA-600-GeH4	Electro Chemical

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Gases Names	Chemical Formula	Range	Product Codes	Sensor Types
Helium	He	0~100% VOL	DA-600-He	TCD
Hexafluoro butadiene	C4F6	0~1,000 PPM	DA-600-C4F6-ND	NDIR
Hydrazine	N2H4	0~2.0 PPM	DA-600-N2H4	Electro Chemical
Hydrogen (% LEL)	H2	0~100%LEL	DA-600-H2-H	Electro Chemical
Hydrogen (ppm)	H2	0~1000 PPM	DA-600-H2-L	Electro Chemical
Hydrocarbon(%LEL)	HC	0~100%LEL	DA-600-HC-CAT	Catalytic
Hydrocarbon(%LEL)	HC	0~100%LEL	DA-600-HC-ND	NDIR
Hydrogen Bromide	HBr	0~10.0 PPM	DA-600-HBr	Electro Chemical
Hydrogen Chloride	HCL	0~10.0 PPM	DA-600-HCL	Electro Chemical
Hydrogen Cyanide	HCN	0~20.0 PPM	DA-600-HCN	Electro Chemical
Hydrogen Fluoride	HF	0~10.0 PPM	DA-600-HF	Electro Chemical
Hydrogen Selenide	H2Se	0~5.0 PPM	DA-600-H2Se	Electro Chemical
Hydrogen Sulfide	H2S	0~10.0 PPM	DA-600-H2S	Electro Chemical
Methanethiol	CH4S	0~20.0 PPM	DA-600- CH4S	Electro Chemical
Methyl Fluoride	CH3F	0~1000 PPM	DA-600-CH3F	NDIR
Nitrogen Dioxide	NO2	0~30.0 PPM	DA-600-NO2	Electro Chemical
Nitrogen Oxide	NO	0~100PPM	DA-600-NO	Electro Chemical
Nitrous oxide	N2O	0~1000 PPM	DA-600-N2O	NDIR
Octafluorocyclobutane	C4F8	0~1000 PPM	DA-600-C4F8-ND	NDIR
Octofluorocyclopentene	C5F8	0~1000 PPM	DA-600-C5F8-ND	NDIR
Oxygen	O2	0~25.0 %VOL	DA-600-O2-CAT	Catalytic
Oxygen	O2	0~25.0 %VOL	DA-600-O2-OP	Optical
Ozone	O3	0~5.00 PPM	DA-600-O3	Electro Chemical
Phosphine	PH3	0~5.00 PPM	DA-600-PH3	Electro Chemical
Phosphorous Oxychloride	POCL3	0~1.00 PPM	DA-600-POCL3	Electro Chemical
Refrigerants	R290	0~100%LEL	DA-600-Propan-ND	NDIR
Silane	SiH4	0~10.0 PPM	DA-600-SiH4	Electro Chemical

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Gases Names	Chemical Formula	Range	Product Codes	Sensor Types
Sulfur Dioxide	SO2	0~20.0 PPM	DA-600-SO2	Electro Chemical
Sulfur Hexafluoride	SF6	0~1000 PPM	DA-600-SF6-ND	NDIR
Sulfur Tetrafluoride	SF4	0~1000 PPM	DA-600-SF4-ND	NDIR
Tetrahydrothiophene	THT	0~100 PPM	DA-600-THT	Electro Chemical
Trimethyl Borate	TMB	0~500 PPM	DA-600-TMB	Electro Chemical
Tetra Ethyl Ortho Silicate	TEOS	0~50.0 PPM	DA-600-TEOS	Electro Chemical
Tetrafluoromethane	CF4	0~2000 PPM	DA-600-CF4-ND	NDIR
Trifluoro methane	CHF3	0~2000 PPM	DA-600-CHF3-ND	NDIR
Tungsten Hexafluoride	WF6	0~10.0 PPM	DA-600- WF6	Electro Chemical
Vinyl Chloride	C2H3CL	0~10.0 PPM	DA-600-C2H3CL	Electro Chemical
Volatile Organic Compounds	VOC	0~100 PPM	DA-600-VOC-L-PID	Photoionization
Volatile Organic Compounds	VOC	0~1000 PPM	DA-600-VOC-M-PID	Photoionization
Volatile Organic Compounds	VOC	0~5000 PPM	DA-600-VOC-H-PID	Photoionization