

GD300
online fixed gas detector

GD300

Online Fixed Gas Detector

Product Overview

GD300 concentration in different kinds of situations or pipelines 24h continuously wall mounted type gas detector. Using world first brand sensors, and advanced micro-process technology, with data display, fast response, high precision and good stability. Powered by 24V DC, with 4-20mA, RS485, relay signal output. Explosion proof, suitable for different kinds of situations.

Product Advantages

Product advantages

- Employing overseas original sensor.
- Standard equipped with three-wire system 4-20mA analog output; relay output; RS485 output (optional)
- Unique infrared ray control function, which can non-contacted control the device. Being compatible with all kinds of controlled alarms, PLC, DCS and other control system, can be remote monitored.
- Alarm mode: Sound and light, alarm value is settable(Optional)
- Explosion-proof design, fast, reliable and stable.
- Explosion-proof grade: II 2G Ex db IIC T6 Gb IP65
With self-calibration function and three standard keys will be used to realize on-site maintenance.

Features

- Monitor the specific gas concentration in environment or pipeline and alarm.
- With self-calibration and zero calibration function, makes the detection more accurate and reliable.
- With temperature compensation, this is able to realize gas concentration compensation under conditions of different temperatures.
- Infrared ray controller can remote control alarm point settings, zero calibration, and address modification.
- Can output one or two on-off signals, can drive ventilator or solenoid valve and other external devices.
- Working Voltage: 12-36V DC
- Case: die-cast aluminum



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Application



▲ Petrochemical & Chemical Industry



▲ Municipal Engineering & Utilities



▲ Agricultural & Environmental Protection



▲ Electronic



▲ Food & Pharmaceutical Industry



▲ Other Industries

Technical Specification

GD300 online fixed gas detector

| | |
|-----------------------------|--|
| Gas Detected | O2, N2, CO2, EX, VOC, PH3, etc. According to customers' requirements. |
| Detection Principle | Electrochemistry, infrared ray, catalytic combustion, PID photo ionization (according to the target gas and sensor). |
| Install Method | Wall-mounted, piping type, flow-type(according to the detected environment) |
| Measure Range | The range is optional, according to the target gas and the sensor. |
| Resolution | According to sensor and measure range |
| Precision | According to sensor. |
| Output signal | 4-20mA, 0-5V, RS485, relay (optional) |
| Response Time | ≤5S |
| Repeatability | ≤±1% |
| Zero shift | ≤±1% (F.S/year) |
| Connection mode | G1/2 external thread explosion-proof flexible pipe |
| Temperature | -20℃ ~ 50℃ |
| Explosion-Proof | II 2G Ex db IIC T6 Gb IP65 |
| Power | 12-36V DC |
| Dimensions | 180×150×90mm |
| Recovery Time | ≤10S |
| Linearity error | ≤±1% |
| Relay output | 220V AC 3A (optional) |
| Thread Size | M45*2mm |
| Humidity | 0-95%RH |
| Degree of protection | IP65 |
| Operating time | 24h |
| Weight | ≤1.6kg |

Normal gas types and parameters (Other gases are not listed can be customized)

| Gas | Measure range | Optional | Resolution | Response time |
|---------------------------|---------------|------------|-----------------|---------------|
| Flammable gas (EX) | 0-100%LEL | 0-100%VOL | 1%LEL/0.1%VOL | ≤10S |
| Oxygen (O2) | 0-30%VOL | 0-25%VOL | 0.01%VOL/0.1% | ≤10S |
| Carbon monoxide (CO) | 0-1000ppm | 0-2000ppm | VOL 0.1ppm/1ppm | ≤10S |
| Hydrogen sulfide (H2S) | 0-100ppm | 0-1000ppm | 0.01ppm/0.1ppm | ≤10S |
| Methane (CH4) | 0-4%VOL | 0-100%VOL | 0.01%VOL | ≤10S |
| Ammonia (NH3) | 0-100ppm | 0-200ppm | 0.01ppm/0.1ppm | ≤10S |
| Chlorine (CL2) | 0-10ppm | 0-100ppm | 0.01ppm/0.1ppm | ≤10S |
| Hydrogen Chloride (HCL) | 0-20ppm | 0-100ppm | 0.01ppm/0.1ppm | ≤10S |
| Hydrogen (H2) | 0-1000ppm | 0-40000ppm | 0.1ppm/1ppm | ≤10S |
| Nitric oxide (NO) | 0-100ppm | 0-250ppm | 0.01ppm/0.1ppm | ≤10S |
| Nitrogen dioxide (NO2) | 0-20ppm | 0-100ppm | 0.01ppm/0.1ppm | ≤10S |
| Nitrous Oxides (NOX) | 0-100ppm | 0-2000ppm | 0.01ppm/1ppm | ≤10S |
| formaldehyde (CH2O) | 0-10ppm | 0-100ppm | 0.01ppm/0.1ppm | ≤10S |
| Ozone (O3) | 0-10ppm | 0-1000ppm | 0.01ppm/0.1ppm | ≤10S |
| Carbon dioxide (CO2) | 0-2000ppm | 0-50000ppm | 0.1ppm/1ppm | ≤10S |
| sulfur dioxide (SO2) | 0-20ppm | 0-5000ppm | 0.01ppm/1ppm | ≤10S |
| Ethylene oxide (ETO) | 0-100ppm | 0-1000ppm | 0.01ppm/1ppm | ≤10S |
| Phosphine (PH3) | 0-10ppm | 0-5000ppm | 0.01ppm/1ppm | ≤10S |
| Hydrogen cyanide (HCN) | 0-10ppm | 0-100ppm | 0.01ppm | ≤10S |
| Nitrogen (N2) | 0-100%VOL | 0-90%VOL | 0.01%VOL | ≤10S |
| Hydrogen fluoride (HF) | 0-10ppm | 0-50ppm | 0.01ppm | ≤10S |

Project Cases



- ◀ GD300
Applied in power plant, hazardous chemicals plant, etc.
- ▼ GD300
Application in sewage treatment, refuse treatment station, etc.



- ▶ GD300
Used in warehouse, freezer, etc.
- ▼ GD300
Used in steel mills, repair shops, etc.



More Application

- Furniture, Floor, Wallpaper, Coating, Gardening, Interior Decoration and Renovation, Dyestuff, Papermaking, Pharmacy, Health Care, Foodstuff, Antiseptic.
- Disinfection, Chemical Fertilizer, Resin, Adhesive, Pesticide, Raw Material, Sample, Technological Process, Livestock Farm, Refuse Processing Plant, Perm Place.
- Bio-pharmaceutical Plant, Green Household, Livestock Breeding, Green House Cultivating, Warehouse Logistics, Brewing And Fermentation, Agricultural Production.

online fixed gas detector GD300:XX Instruction Manual



Notice to Reader

Please read this instruction manual before using the detector

Matters need attention

A. Please read this instruction manual before using the detector.

B. The detector must be used in compliance with the designated procedures of our company. C. The warranty period of this transmitter is 12months (starts from the date userget the detector).

Users should comply with the instructionsin the use of this detector. Any damages or malfunctions caused by improperoperation of users are not within the scope of warranty.

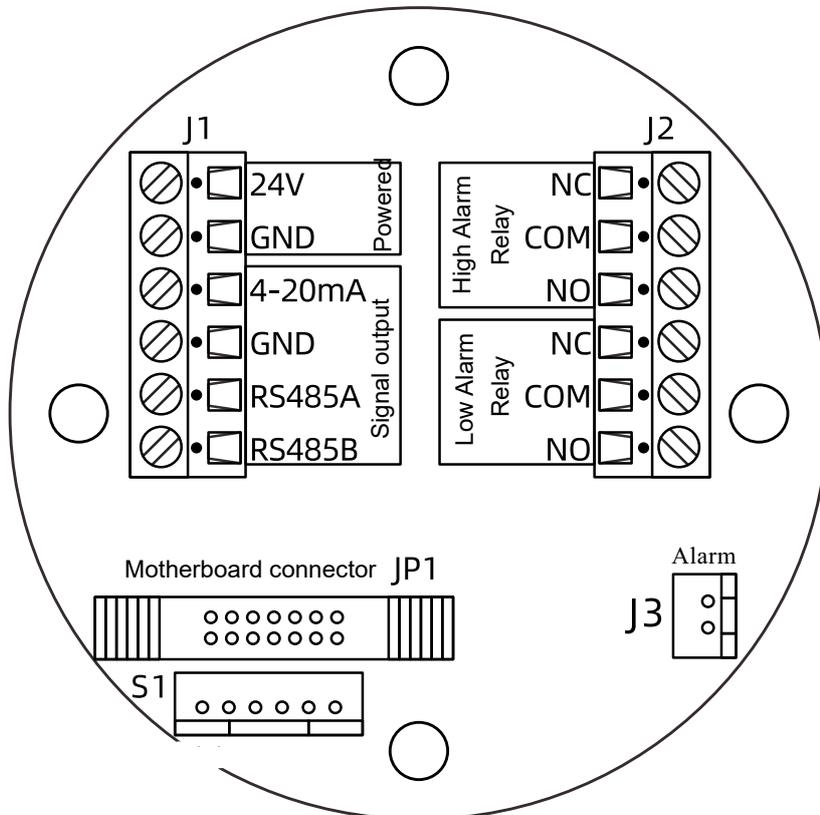
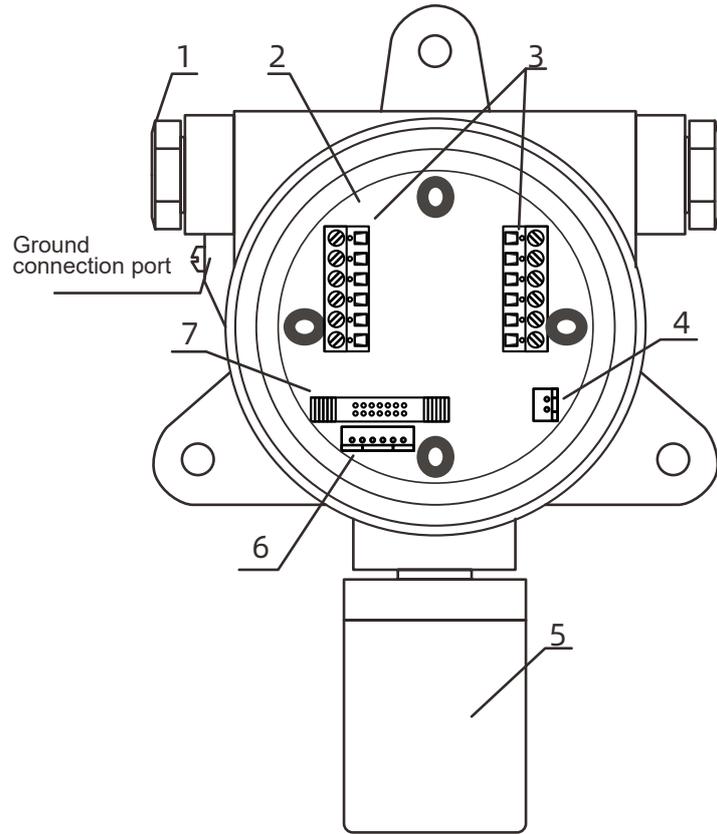
D. Repairand replacement of any parts must be operated by trained staff under authorization of our company, using original spare part. The operatoris responsible for the liability if users operate the repair of replacement by themselves.

E. There is acid solution inside the transmitter, please do not disassembleit. And pay attention not to damage the frontal membrane of the transmitter. If the skin is stained with the acid solution. the right remedy is to flushing the stained skin continuously with clean water for 1 0minutes.

F. The detector must be calibrated for once each year. The explosion proof sheet parts of the transmitter need to be cleaned regularly (blow with low pressure compressedair), otherwise the detection sensitivity will be affected by the dust and impurities clogging protection hole.

Port Instruction

1. Power supply, signal line
2. Printed-circuit board
3. Terminal
4. Sound and tight alarm port
5. Air chamber of sensor
6. Sensor port
7. Main board connection



NC:Normally close
 NO:Normally open
 COM:Common
 24V:24+,positive
 GND:24-,negative
 4~20mA:4~20mA analog signal

Technical performance and parameters

1. Key Technical Indicator

| Target gas | Range | Accuracy | least count | response time |
|---------------------------------|------------|-----------|-------------|---------------|
| O ₂ | 0-30%VOL | <±2%(F.S) | 0.01%VOL | ≤15 |
| H ₂ S | 0-1000ppm | <±2%(F.S) | 1ppm 1ppm | ≤15 |
| CO | 0-1000ppm | <±2%(F.S) | 1ppm 1ppm | ≤25 |
| H ₂ | 0-20000ppm | <±2%(F.S) | 0.01ppm | ≤15 |
| CO ₂ | 0-10000ppm | <±2%(F.S) | 0.1ppm | ≤40 |
| C ₂ H ₄ | 0-100ppm | <±2%(F.S) | 0.01%VOL | ≤60 |
| NO ₂ | 0-20.0ppm | <±2%(F.S) | 1ppm | ≤25 |
| N ₂ | 0-100%VOL | <±2%(F.S) | 0.01ppm | ≤40 |
| TVOC | 0-6000ppm | <±2%(F.S) | 0.01ppm | ≤60 |
| NH ₃ | 0-100ppm | <±2%(F.S) | 0.1ppm | ≤40 |
| ASH ₃ | 0-10.00ppm | <±2%(F.S) | 0.01ppm | ≤30 |
| C ₃ H ₃ N | 0-200.0ppm | <±2%(F.S) | 0.01ppm | ≤40 |
| F ₂ | 0-10 ppm | <±2%(F.S) | 0.01ppm | ≤25 |
| O ₃ | 0-5.00ppm | <±2%(F.S) | 0.01ppm | ≤50 |
| CL ₂ | 0-10.00ppm | <±2%(F.S) | | ≤60 |
| BF ₃ | 0-10.00ppm | <±2%(F.S) | | ≤60 |

Repeatability: <2%

Zero drift: < ± 2% (F•S) /6M

Operating temperature: -20~+50°C

Environment temperature: <90%RH

Working principle of the transmitter: electrochemical for oxygen and hazardous gases, catalytic combustion for combustible gases

Lifespan of transmitter: 3years for combustible gas transmitter; 2years for hazardous gas transmitter

2. Other Technical Parameters

Inspection mode: diffusion

Working mode: fixed long-term continuous work Working voltage: 12-30V DC

Working current: oxygen and hazardous gas <50mA (Max)
combustible gas <150mA (Max)

Output signal: three-wire 4-20 mA standard signal output or RS485 signal output Exterior structure: die-casting aluminum housing

Dimensions: 135 x 125 x 116mm (without mounting bracket)

167 x 145 x 126mm (with bracket)

Weight: without mounting brackets 1.2kg with brackets 1.6kg with stent

Connection cable (6 core cable) is defined as

follows: 4-20mA with RS485:

Red: positive-input of power (12 to 24V)/ 24V+ Black:

ground wire of power/24V

Yellow:4-20mA output.

Orange: RS485A

Blue: RS485B

Brown: Free

Connection distance: >1000m

Protection grade: IP65

Installation type: on wall

Type of explosion-proof: flame proof Explosion-proof

grade: Ex d IIC T6 Gb

Inlet port: hexagonal locknut

Settings of Remote Control

The remote control applied to all product type produced by Yuante.

1. Press "MENU" once to enter F01, address code setting menu. Press "OK" to modify, press "+" "-" to modify address code of the detector. Press "OK" to save settings and "BACK" to cancel.

2. Press "MENU", then press "+" to enter F02, minimum value setting menu of gas alarm, Press "OK" to modify, press "+" "-" to modify the value. Press "OK" to save settings and "BACK" to cancel.

3. Continue to press "+" to enter F03, maximum value setting menu of gas alarm., Press "OK" to modify, press "+" "-" to modify the value. Press "OK" to save settings and "BACK" to cancel. Same operation with F04 (zero point calibration), F05 (range calibration), F06 (AD value).

4. Press "MENU" four times to enter a shift status, under this status:

Press "RESET" once, the data would be 255, one more it would be 0. Just press "RESET" to shift. When the data is 0, press "+" or "-" to modify alarm point, the data difference would be only 1. When the data is 255, press "+" or "-" to modify alarm point, the data difference would be 1000. "RESET" can also be used as mute button when it is alarming.

Remote controller function

| | |
|-------|---|
| MENU | MENU button, from the measurement state into the functional state alarm |
| RESET | reset to eliminate alarm function |
| OK | confirm button |
| + | plus |
| BACK | return |
| - | minus |

Function

introduction Controller

function introduction

F-01 Address, Range1-200

F-02 Low point alarm

F-03 High point alarm

F-04 Zero calibration

F-05 4mA offset correction

F-06 ADC check

F-07 Standard gas concentration

F-08 Calibration switch

F-09 Production date

F-10 Reserved function

F-11 Serial communication check. 0 no check, 1 odd check, 2 even check F-12

Arrangement mode of the floating-point data

0:DCBA

1:ABCD

2:CDAB

Need to press OK to save after all the above parameters are modified, which can take effect immediately, power outage restart also valid.

Installation Instruction

1. Location Selection

The location selection of the gas detection transmitter is essential to achieve the best detection results. In the selection of location, we need to consider the following factors: the density of gas in a leaking point, proportion of target gas, the impact of surrounding buildings, condition of production equipment, wind direction and annual meteorological conditions and even the location of windows and doors in an indoor environment.

We provide the following suggestions for your reference:

A. Maintain a proper distance between the detector and the possible gas leaking point. It would react too fast or too frequent if the distance is not enough, which may paralyze people's mind.

B. The detector must be located in the downwind of the possible leaking point.

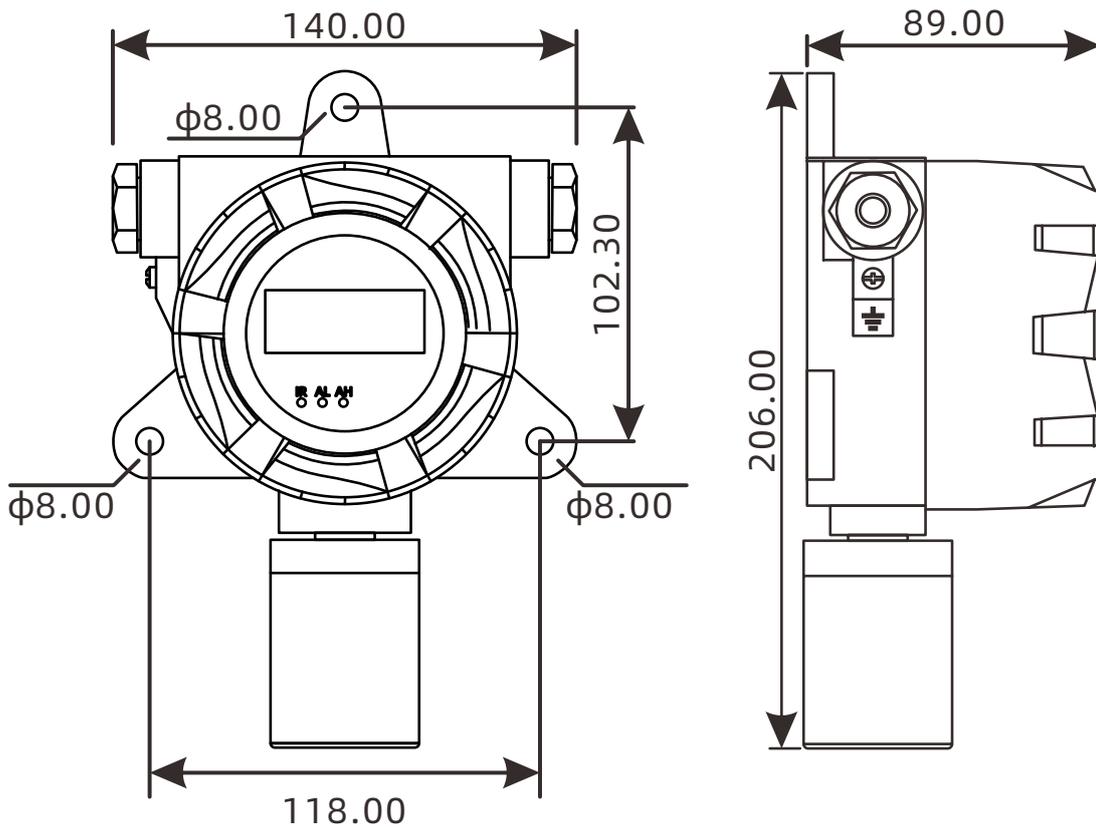
C. If installed indoor, but the source of the leak is outdoor, the detector must be installed at the air inlet.

D. Determine the height according to proportion of target gas in air.

E. Determine the quantity of detectors according to the condition of possible leaking point, frequency of staff attendance and time of stay as well as the economic effect.

F. Consider to increase quantity of inspection point if the equipment is old.

G. Protect the detector from radiation of high temperature heat source. Environments of both very high temperature and very low temperature will affect the result and lifespan of the detector.



2. Steps of Installation

Connect wire to correspondent terminals. Don't work with power on. The arrangement of terminals differs according to the type of transmitter. The definition of different wires:

Red: positive-input of power (12 to 24V)/24V+ Black: ground wire of power/24V
 Yellow:4-20mA output.
 Orange: RS485A
 Blue: RS485B
 Brown: Free

Fix the detector on the wall with expansion bolt, make sure the transmitter is downward, or the detector cannot work property. Users can also separate the bracket and transmitter according to the condition on spot, fix the bracket before connection.

For the sake of safety and interference reduction, please connect the housing with reliable ground wire. For the wire between the transmitter and the main engine, the shorter, the better. And protect the wire with iron pipe.

Method of Calibration

To guarantee the measurement accuracy of the transmitter, regular calibration and maintaining rigorous record is necessary.

Devices needed for calibration: a bottle of sample gas used for range calibration (60%F.S standard gas in normal site),relief valve, flow meter of 0~1000ml/min, transparent and smooth conduit for gas, standard gas housing, digital multimeter, stopwatch and etc.

Note: The value of transmitter WB (4mA) , WC (20mA) , Wz (zero potentiometer), WA (range potentiometer, also known as calibration potentiometer) and host alarm has been set right before it leaves the factory. User should not adjust casually. It is the value of zero potentiometer (Z) and calibration potentiometer (S) needed to be set on spot.

1. Zero Point Calibration

Open the detector in clean air, if there is readings after counting down.

Press the button "MENU" of the remote controller, the detector displays "F-01", press "+" or "-", change the function to "F-04", and click "OK". The detector value will be displayed as 0.

In the zero calibration of oxygen detection transmitter, we must use nitrogen of purity over 99.99%.

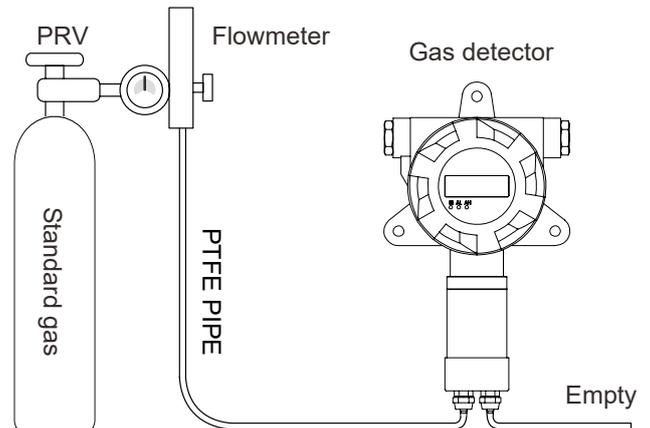
2. Range Calibration

1. Enter into "F-07" as the same way above. The "F-07" value is the concentration of the standard gas, initialized to half of the measure range. This value can be modified through the "+" and "-" keys to make it consistent with the standard gas concentration which need to be calibrated. Press "OK" to exit.

2. Enter into "F-08" to change 0 into 1, then back to detection interface.

3. Connect the 200-400mL/min standard gas in detection interface, when the detector value is stable, press "OK" for 3 seconds, then the instrument will be calibrated automatically. The measured concentration value is consistent with the value set in "F-07".

4. After calibration, left the detector in the air for a while. Shut off the power when the detector value is close to zero.



Common Malfunction, Repair and Maintenance

| Symptom | Reason | Method to process |
|---------------------------|---|---|
| No output for transmitter | wrong connection | connect again |
| | potential in reference point is not correct | Adjust zero point gradually and then adjust potentiometer (4mA) Return to Yuante for repair |
| | Circuit fault | Calibrate again |
| Too low host reading | Value of S potentiometer setting is too small | Get a new transmitter |
| | Transmitter failure | Calibrate again |
| Too high host reading | Value of S potentiometer setting is too large | Get a new transmitter |
| | Transmitter failure | Wait for starting up |
| Instable host reading | Heat settling time is not enough | Return to Yuante for repair |
| | Transmitter failure | |
| | Circuit fault | |

Product component

| | |
|---------------------------|-----|
| Fixed Gas Detector | one |
| Instruction Manual | one |
| Qualification Certificate | one |
| Remote Control | one |