Biogas Online Analyzer

BGA-1000F

CONTENT

1.0 Brief

Features

Analysis cabinet's housing is stainless steel which is adaptable to corrosive environment. Besides, cabinet is sealed to prevent from corrosive gas. Intelligent heater is built inside to ensure normal functioning of the system when inside temperature approaches 8℃. Analysis system can be programmed to realize auto-drain and auto zero calibration function. Online infrared biogas analyzer is the core part of the system. Gas molecules Like CO2、CH4 which are composed of different types of atoms have absorption spectrum in infrared range. Absorption intensity observes Lamber-Beer's Law. Our product is on the basis of it. In addition, electrochemical oxygen sensor measuring module can be installed internally so as H2S Sensor. One single analyzer can measure up to 4 gas components. Our equipment can be applied to detect the concentration of landfill gas, biogas and CO2、CH4、H2S、O2 produced in the biogas generating process.

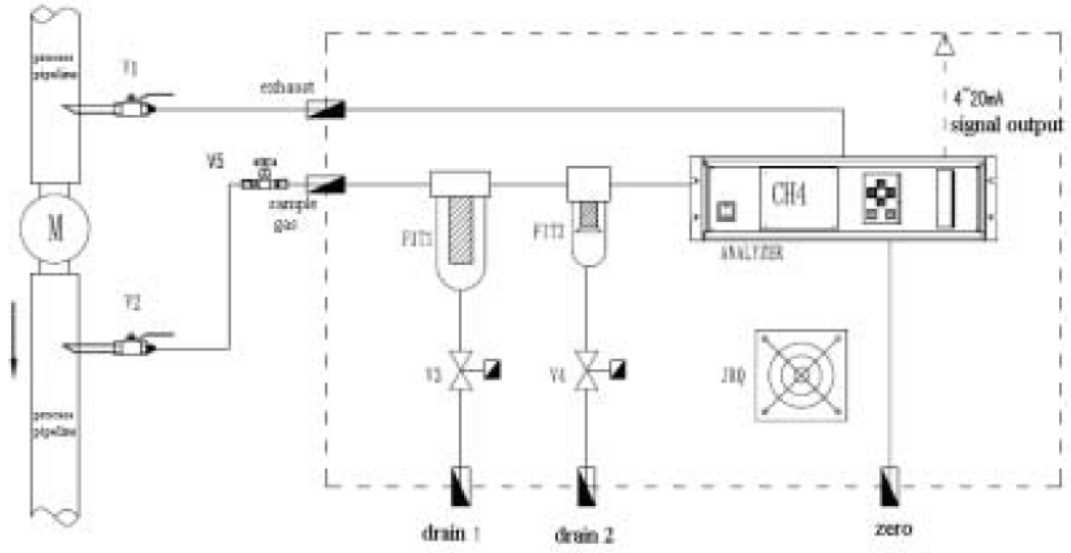
It is applicable to various kinds of environment. Through analyzing parameter change, it helps to judge and alarm in industrial process. Meantime, 4-20mA DC output and digital alarm output interface are available.

1.1 Working environment

- Power Supply : 230VAC, 50HZ to 60HZ
- Sample gas specification:-
  - sampling pressure : 3 ~ 20Kpa
  - exhaust pressure : 0 ~ -10Kpa
- Operating temperature : 0 ~ 80℃
- Ambient temperature : -10℃ ~ 55℃

2.0 System flow

2.1 Flow chart



Flow chart
Fig 1

Specification：

- **Globe valve V1,V2**
  Type: Manual ball valve， stainless steel；
  Function: Cut off sampling and exhaust pipeline when doing maintenance

- **Throttling valve V5**
  Type: Ø6 stainless steel needle valve， cutting sleeve connector；
  Function: adjust flow to a level of 0.7~1.2L/min

- **Gas-water separator FIT1**
  Type: PTFE core ， Filter size: 3um；
  Function: Separate liquid water and filter impurities of 3um

- **Ultra-filter FIT2**
  Type: Fibre core， Filter size: 1um；
  Function: Filter impurities of 1um and above

- **Solenoid valve V3，V4**
  Type: DC24V， normally closed；
  Function： It is programmed to regularly evacuate water automatically.

- **Heater JRQ**
  Type: AC220V，300W；
  Function: Avoid pipeline freezing and plugging when the inside temperature is below 8℃

3.0 Complete System

Equipment and accessories:

No	*Name*	*Model*	*Qty*
1	Biogas Analyzer	BGA-1000F	01 unit
2	Manual Ball Valve	4-way, Stainless steel	02 unit
3	Reducer Union	½"/Ø6mm Stainless Steel	02 unit
4	Sampling and Exhaust pipe	½"/Ø6mm PTFE	01 meter
5	Insulation Pipe		01 meter
6	Throttling valve	Ø6mm cutting sleeve, Stainless Steel	01 unit
7	Spare Part		
7.1	Core	Ø6mm	04 units
7.2	Filter core of gas water	PTFE	01 unit
7.3	Hexagon Wrench	M8	01 unit
8	Documents		
8.1	Manufacturer Certificate		01 book
8.2	Instrument manual		01 cert

4.0 Technical data

Gas Parameter: CH4 Methane
Range：0～100％（VOL）
Principle： NDIR
Accuracy： ±1％FS
Nonlinearity： ≤±1％FS
Zero drift： ≤± 1％FS / per week
Output： 4～20mA(maximum 750 Ω)，DC/alarm output 2 point

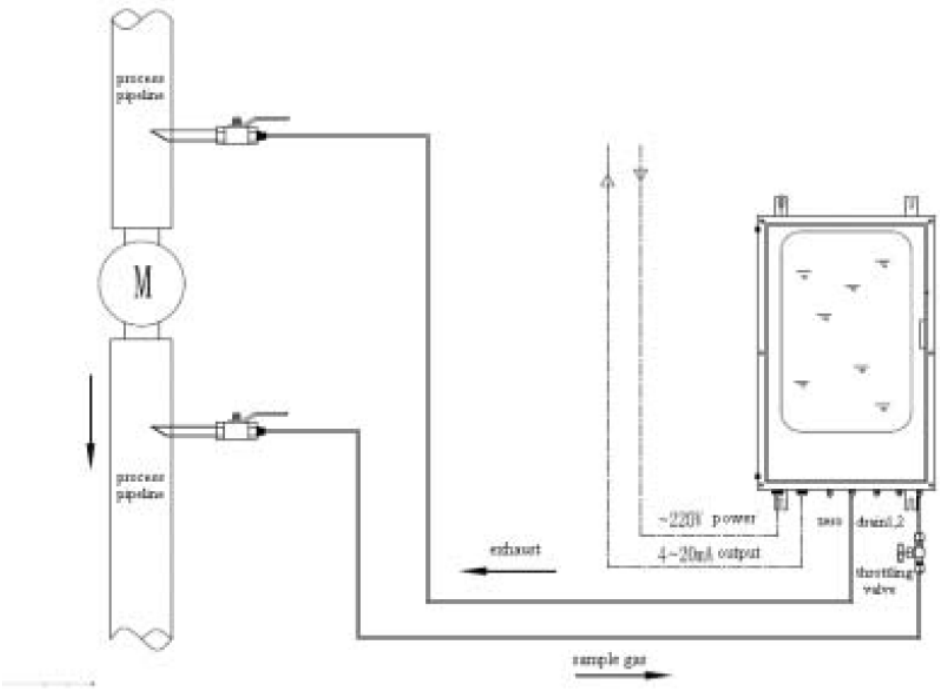
Gas Parameter: CO2 Carbon Dioxide
Range：0～50％（VOL）
Principle： NDIR
Accuracy： ±1％FS
Nonlinearity： ≤±1％FS
Zero drift： ≤± 1％FS / per week
Output： 4～20mA(maximum 750 Ω)，DC/ alarm output 2 point

Gas Parameter: H2S Hydrogen Sulphide
Range： 0～1%（VOL）
Principle： ECD
Accuracy： 3%FS
Zero drift：≤0.05%（VOL）/per week
Temp. drift：≤±0.025%（VOL）
nonlinearity： ≤±0.5% full range
Output： 4～20mA(maximum 750 Ω)，DC/ alarm output 2 point

Gas Parameter: O2 Oxygen
Range：0～25%（VOL）
Principle：ECD
Accuracy： 3%FS
Zero drift：≤0.05%（VOL）/per week
Temp. drift：≤±0.025%（VOL）
Nonlinearity： ≤±0.5%full range
Output： 4～20mA(maximum 750 Ω)，DC/ alarm output 2 point

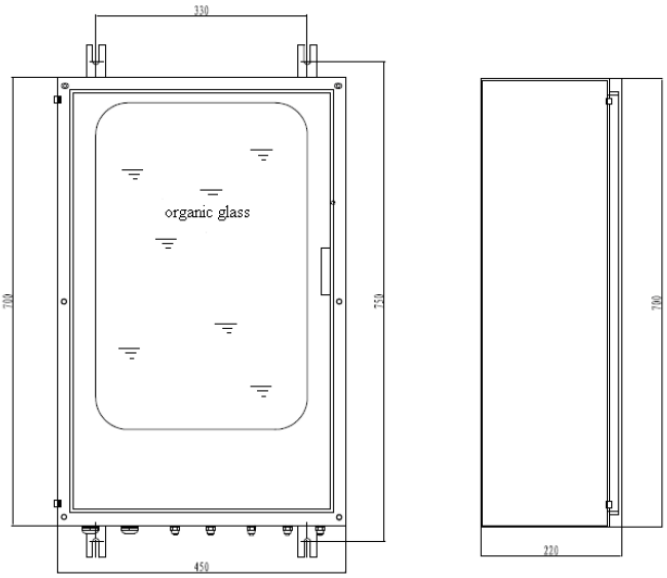
5.0 Installation

5.1 ***System Layout Diagram***



System Layout Diagram
Fig 2

5.2 Panel Layout



Panel dimensions

Wall-mounted cabinet， use bolt to fix on the wall or support frame， bolt model：M10。

5.3 Sampling gas pipe installation

- To avoid mechanical damage, it's appropriate to lay the sampling pipe and exhaust pipe along the support frame or pipe chase.
- If it is difficult to recycle the exhaust to process pipeline, you can evacuate it in safe area.
- You can not apply in-site air as zero gas which is severely polluted. Collect clean air with extra pipe line if it is so.
- If it is in open area, there is no need to connect extra pipeline to drain the water.

5.4 Electrical installation

- Panel
  Power Consumption: 500Watt
  Power Supply: 230VAC, 50-60Hz
  Power cord is led through power entrance to main switch QF up end，cable model：RVV 3*1.5mm2

- Signal cable
  Apply cable model RVVP 8*0.75mm2 if it is 4~20mA signal output. If it is digital alarm signal, you should choose according to alarm component. There are 4 alarm cables in total. Connecting terminal lies under the panel inside the cabinet. Refer to instrument manual for specific wiring.

6.0 Operation

To ensure the pipeline is without leakage, check carefully after all installation work is done. Make sure that grounding work is done and power supply meets particular requirements.

6.1 Power on

Switch MCB and enter in warm-up interface, then system starts to work. Close the cabinet door and tighten it with hexagon wrench. It takes 10min's warm-up time to enter in measuring interface

6.2 Sampling

First close V5 and then open V2, V1 in sequence, rotate V5 gently eventually till the flow is 1.0L/min. sampling gas will flow into analysis panel, it will show the gas components reading after a few seconds.

7.0 Maintenance

7.1 Instrument maintenance

Signal drift will occur if the analysis instrument is regularly used. It contains automatic zero calibration function. If you need calibrate manually, please refer to concerning chapter.

7.2 Pipeline maintenance

To ensure reliable functioning of the system, you should check the pipeline working condition regularly to make sure that there is no leakage and plugging. You can judge the trouble through below：

- If there is tiny flow or even no flow in the flow meter, please check whether the process pipeline pressure is normal first and check whether the pipeline is choked. Special notice: This trouble will also appear if exhaust pipe is choked.
- If there is a huge discrepancy between measurement result and experience. There may be leakage occurring.

7.3 Filter core maintenance

You should replace the filter material regularly according to actual pollution condition. Cut off sample gas valve and exhaust valve before replacing. To ensure tightness, lock cabinet door after replacement

7.4 Drain

In cold weather condition, make sure there is no frost in drain

8.0 Shipment and storage

Gas analysis system is highly sophisticated equipment. You should pack with wooden case stuffed with vibration-absorptive material so that the glass will not be pressured against .Ensure the cabinet is in upright state in the process of shipment, anti-moisture measures should be taken to protect electrical unit.

9.0 Quality Guarantee

After-sales service commitment：

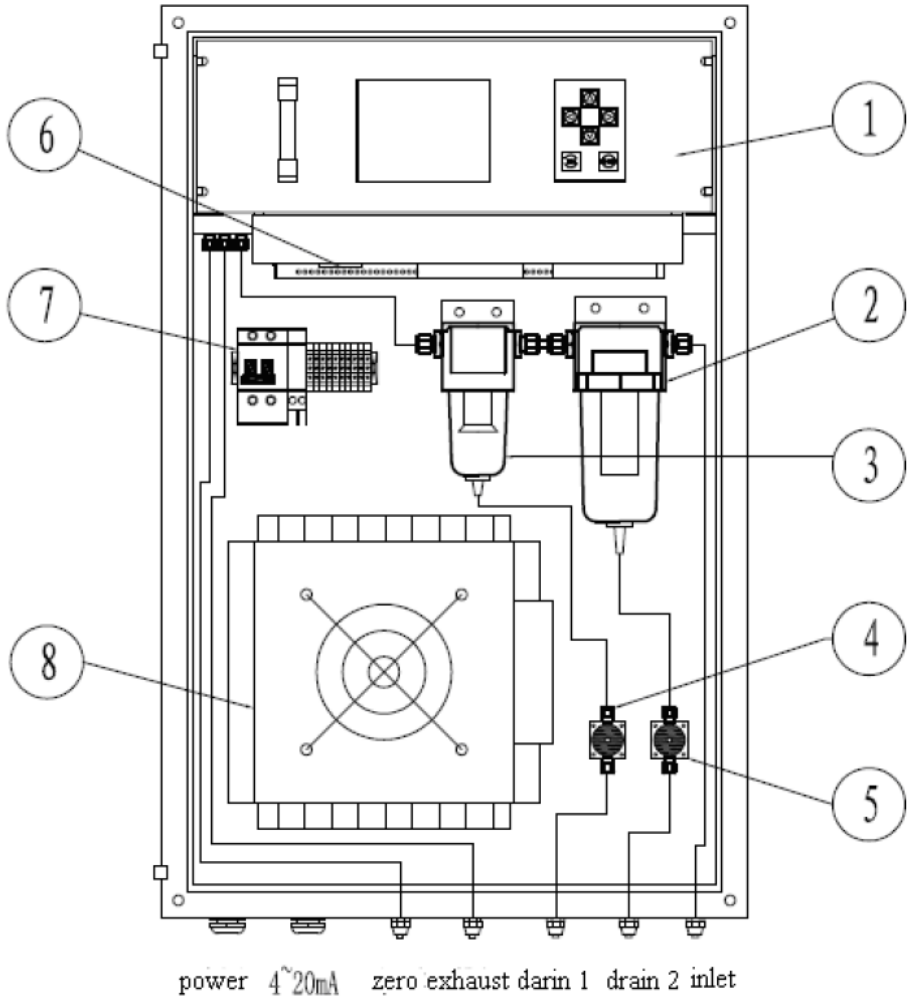
- Calculated from the day when the products are inspected and accepted, warrantee period is one year.
- We will bear the freight cost and repair the products for free due to quality reasons if it is under warrantee.
- Engineer on site will be charge according to man day event the product is still under warranty.
- After warrantee period, we still assume repair responsibility, but cost and freight fee will be charged.

After-sales service

TEL：+603-5124 0822
E-mail: info@lkssb.com.my

10.0 Detail Internal Layout

Appendix 1 : Configuration



① Front pannel ② Gas-water separator FIT1 ③ Ultra-filter FIT2 ④ Solenoid valve V4 ⑤ Solenoid valve V3 ⑥ Signal cable connecting terminal ⑦ Main switch QF ⑧ Heater JRQ