General Specifications

Model MG8G (General Purpose) Paramagnetic Oxygen Analyzer

GS 11P03A03-01E

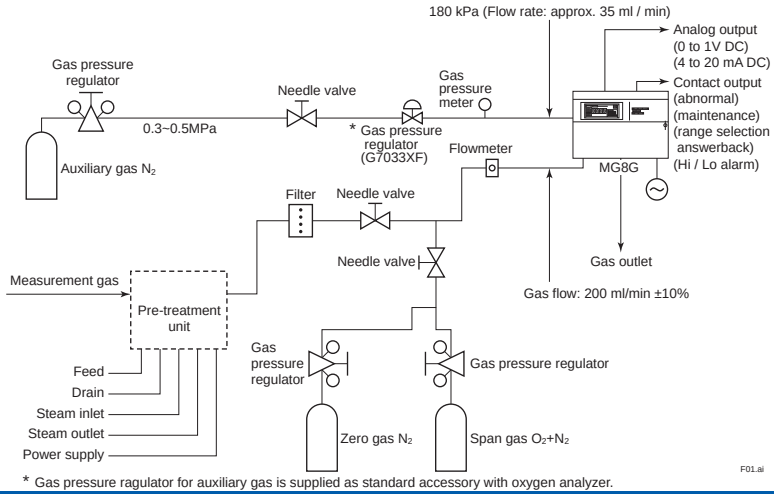
■ GENERAL

The Model MG8G Paramagnetic Oxygen Analyzer measures the concentration of oxygen based on the fact that a magnet attracts gaseous oxygen. The sensor employs a magnetic proportional flow rate system, which has been developed based on our long and field-proven experience, providing improved and advanced performance. Whereas Zirconia Oxygen Analyzers cannot measure oxygen in flammable gas mixtures, the MG8G can measure oxygen concentration in flammable gas mixtures.
The converter is microprocessor based, to provide ease of use and self-diagnostics.
It can be used together with a sampling unit to measure oxygen in high temperature, high pressure, high dusty, or high-humidity process gas mixtures.

■ FEATURES

- **Long-life Sensor Regardless of Measurement Gas Types**
  A clean auxiliary gas (N_2), not process gas, is always flowing past the detection unit sensor. Therefore, a stabilized output can be obtained for a long period uninfluenced by contamination in the process gas or by corrosive gas.
- **90% Response within 3 sec**
  Since a thermistor having high sensitivity and a high speed of response directly detects variations in an auxiliary gas, a response can be derived instantaneously. Moreover, since the thermistor does not come into contact with the process gas, a long service life and stable high-speed response can be obtained.
- **Structure with No Movable Parts**
  Having no movable parts, the MG8G is excellent in seismic-proof property and shock resistance. Since the material along the process-gas flow path is made of JIS SUS316 stainless steel, it has excellent durability
- **Interference-gas Compensation Function**
  A flammable gas (such as H_2) has a little magnetism, although their magnetism is very low compared to oxygen. This causes error in a paramagnetic oxygen analyzer to result in error. However, the MG8G has a function to compensate for one type of interfering gas (or multi component gas having constant of its mixture ratio) using the differences in gas densities.
- **Easy Operation with Large Display**
  The large display can display oxygen concentration, thermostat temperature of the detector, cell output, and so on. The analog bar graphs can indicate the analog output statuses for each range.
- **One-touch Calibration, Automatic Calibration for Labor-saving**
  Calibration is enabled by only pressing the calibration button after turning on the calibration gas (zero/span gas) flow. Further, an automatic calibration mode is available if you need.
- **Multiple Self-diagnosis Functions**
  Since five types of errors including cell error, analog error, and temperature error are clearly displayed, appropriate actions can be immediately taken.

■ BASIC SYSTEM CONFIGURATION



* Gas pressure regulator for auxiliary gas is supplied as standard accessory with oxygen analyzer.

YOKOGAWA

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■STANDARD SPECIFICATIONS

Measurement Object: Oxygen concentration in gaseous mixture
Measurement System: Paramagnetic system
Measurement Range: 0-5 to 0-25 vol%O_2
3 ranges can be programmed arbitrarily within the above specified range.
Self-diagnostic content: Sensor unit error, Constant temperature chamber error, Analog error, Memory error, Calibration coefficient error
Analog output signal: 4 to 20 mA DC (load resistance: Maximum 550 Ω)
Contact output: Contact rating; 3 A at 250 V AC or 30 V DC, dry contacts
Fail; 1 point, open or closed when error occurs, user configurable
Contact is activated when sensor unit error, constant temperature chamber error,analog error, memory error, or calibration coefficient error (when automatic or semiautomatic calibration is enabled) occurs
Maintenance status; 1 point, closed during maintenance
Range answerback or high/low alarm; 2 points, normally de energized (open)
Range answerback or high/low alarm contact output, user selectable
Operate solenoid valve: 3 points, Switching between zero and span calibration gas and measured gas.
Maximum load; AC 1A
Contact input:
Input specification;Contact ON: 200 Ω or less, Contact OFF: 100 kΩ or greater
Remote range switching; 2 points, Output ranges 1 to 3 can be switched by external contact signal.
Calibration start; 1 point, calibration start command by external contact signal.
Calibration methods:
(1) Automatic calibration at set intervals by internal timer
(2) Semiautomatic calibration started by external contact input
(3) Manual calibration in the field
Calibration gas:
Zero gas; N_2 gas
Note: Zero gas should not contain O_2 gas with a concentration equal to or greater than 0.1% of the upper range value.
Span gas: Dry air (instrument air O_2: 20.95 vol%) or standard gas containing O_2 gas with a concentration of 80 to 100 % of the span value (balance nitrogen).
Auxiliary gas pressure:
N_2, 180 kPa (Approx. 35 ml/min)
Note: Auxiliary gas should not contain O_2 gas with a concentration equal to or greater than 0.1 % of the upper range value.
Measurement gas condition:
Flow; 200ml/min ±10 %, The gas flow rate may be less than 200 ml/min depending on the composition of the measurement gas.
Temperature; 0 to 50°C
Humidity; No moisture condensation in the flow path or the sensor.
Warm-up time: Approx. 2.5 hours
Installation condition:
Ambient temperature; -5 to 55°C
Humidity; 10 to 95 %RH (No condensing)
Power supply:
Power supply Voltage 100 to 115 V AC;
Reted voltage range: 100 to 115 V AC
Allowable voltage range: 90 to 127 V AC
Rated frequency: 50 or 60 Hz
Allowable frequency range: 48 to 63 Hz
Power supply Voltage 200 to 240 V AC;
Reted voltage range: 200 to 240 V AC
Allowable voltage range: 180 to 264 V AC
Rated frequency: 50 or 60 Hz
Allowable frequency range: 48 to 63 Hz
Power consumption: 100 to 115 V AC; Max. 110 VA, normally approx. 25 VA
200 to 240 V AC; Max. 125 VA, normally approx. 35 VA
KC Marking: Korea Electromagnetic Conformity Standard
Materials in contact with gas:
SUS316 stainless steel, Fluorine-contained rubber
Line connection: Rc1/4
Conduit connection port: Ø27 hole
Installation: Indoor, panel or wall mounting
Structure: Dustproof, General purpose
Dimension: 406 (W) X 288 (H) X 216 (D) mm
Weight: Approx. 18kg

Characteristics
Repeatability: ±1% or less of F.S.
Linearity: ±1% or less of F.S.
Response time : 90% response within 3 sec. (from changing analog output at measured gas flow rate 200 ml / min.)
Zero drift: ±1.5% or less of F.S. / Week
Span drift: ±2% or less of F.S. / Week
Temperature drift: ±1.5% or less of F.S. / 10°C
Effects of measured gas flow rate: ±1% or less of F.S. for the rated flow rate ±10%

■ MODEL AND SUFFIX CODES

Model	Suffix Code	Option	Description
MG8G	----------	------	Paramagnetic oxygen analyzer
Measurement range	-M	------	0 - 5 to 25 vol% O_2
Wetted material	A	------	SUS316, Fluorine-contained
Power supply	-2	------	200 - 240V AC, 50/60Hz
	-5	------	100 - 115V AC, 50/60Hz
Auxiliary gas	-W	------	N_2 gas
Flow rate of auxiliary gas	L	------	Standard (35 ml /min)
Language	-J	------	Japanese
	-E	------	English
Auto calibration	-C	------	available
Style code	*C	------	Style *C

■ STANDARD ACCESSORIES

Item	Parts No.	Qty	Description
Fuse	A1111EF	2	250V 2A
Spanner	G7050YZ	1	for adjustment of sensor angle
Regulator	G7033XF	1	for Auxiliary gas
Mirror	K9320CC	1	for adjustment of sensor angle
User's Manual	–	1	

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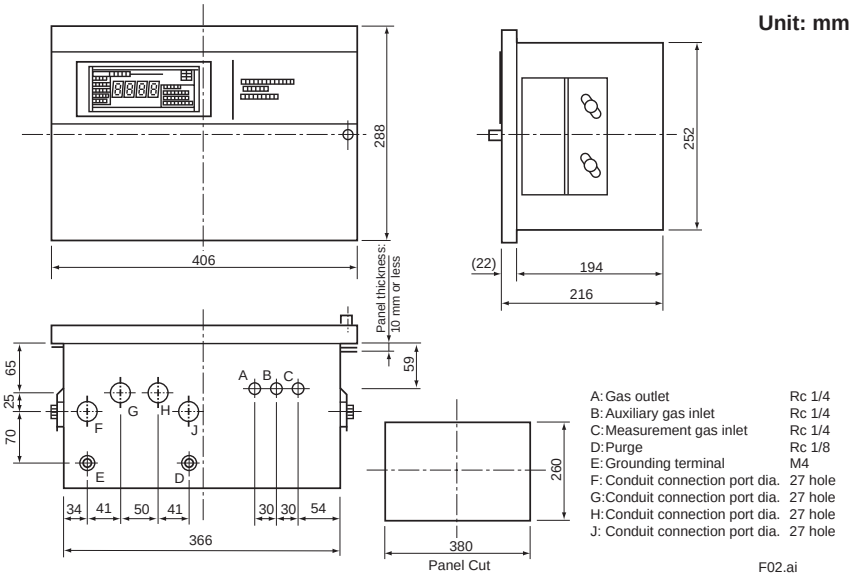
■ EXTERNAL DIMENSIONS

Unit: mm



A:	Gas outlet	Rc 1/4
B:	Auxiliary gas inlet	Rc 1/4
C:	Measurement gas inlet	Rc 1/4
D:	Purge	Rc 1/8
E:	Grounding terminal	M4
F:	Conduit connection port dia.	27 hole
G:	Conduit connection port dia.	27 hole
H:	Conduit connection port dia.	27 hole
J:	Conduit connection port dia.	27 hole

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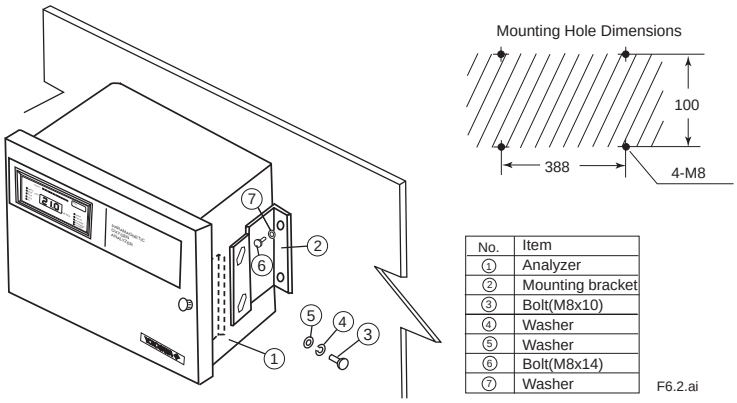
Panel Mount



No.	Item
①	Analyzer
②	Mounting bracket
③	Bolt(M8x10)
④	Washer
⑤	Washer
⑥	Bolt(M8x14)
⑦	Washer

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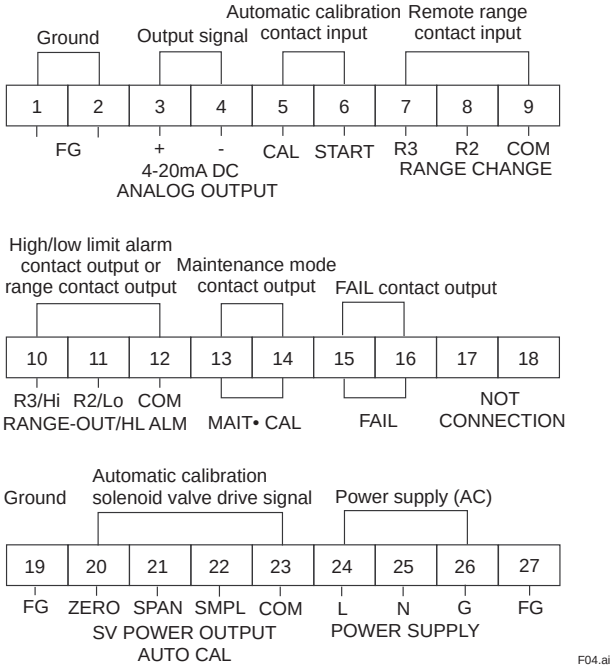
Wall Mount

■ WIRING CONNECTION



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Inquiry Sheet for the MG8G Paramagnetic Oxygen Analyzer.

Please place checkmarks in the appropriate boxes and fill in the necessary information in the blanks.

1. General

Customer : _____
Tag No. : _____
Plant name : _____
Sampling point : _____

2. Utilities and Installation Conditions

Power supply :.....V AC ±.....%,.....Hz
Air supply (instrument air) : pressure ..... kPa
Steam : pressure ..... kPa
temperature ..... °C
Cooling water : temperature ..... °C
Distance between sampling point and analyzer
: ..... m ; ..... feet
Distance between analyzer and control panel
: Approx. ..... m ; ..... feet

3. Process Conditions

Process Gas Component	Concentration (vol%)		
	Nor.	Max.	Min.
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
Process pressure (kPa)			
Process temperature (°C)			
Dust (g/Nm^3)			
Water content ☐ vol%, ☐ °C, ☐ °F Saturated			
Corrosiveness	☐ No ☐ Yes		

4. Installation Conditions

Temperature : Max. ..... °C; Min. ..... °C
Max. ..... °F; Min. ..... °F
Corrosive gases : ☐ Not present ☐ Present .....
Vibration : ☐ No ☐ Yes .....
Location where the analyzer and sampling system are installed:
☐ Indoors ☐ Outdoors ☐ Other_____

5. Scope of Estimate

☐ Model MG8G Paramagnetic Oxygen Analyzer
_____/ set
☐ Auxiliary gas pressure meter _____/ set
☐ Auxiliary gas cylinder ☐ 10 l ☐ 40 l
_____/ set
☐ Auxiliary gas pressure reducing valve
_____/ set
☐ Zero gas cylinder ☐ 10 l ☐ 40 l
_____/ set
☐ Zero gas pressure deducing valve
_____/ set
☐ Span gas cylinder ☐ 10 l ☐ 40 l
Range of _____to _____vol%O_2 _____/ set
Range of _____to _____vol%O_2 _____/ set
☐ Span gas pressure reducing valve
_____/ set
☐ Spare parts for year(s) _____/ set
☐ Sampling probe (*) _____/ set
☐ Sampling system (*) _____/ set

* : Arrangements will be made separately.
Tokuchu sheet is required.

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