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 (N₂), 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.

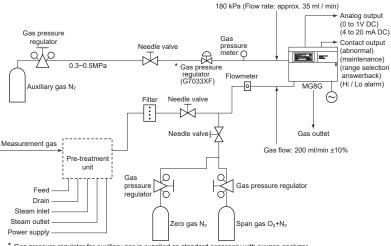
- · 90% Response within 3 sec Since a thermistor having high sensitivity and a high speed of response directly detects variations in an auxiliary gas, a response can be derived instantaneously. Moreover, since the thermistor does not come into contact with the process gas, a long service life and stable 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 H₂) 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
- · 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.

available if you need.

■ BASIC SYSTEM CONFIGURATION







STANDARD SPECIFICATIONS

Measurement Object: Oxygen concentration in gaseous mixture

Measurement System: Paramagnetic system Measurement Range: 0-5 to 0-25 vol%O₂

> 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

(2) Semiautomatic calibration started by external contact input

(3) Manual calibration in the field

Calibration gas:

Zero gas; N₂ gas

Note: Zero gas should not contain O₂ gas with a concentration equal to or greater than 0.1% of the upper range value.

Span gas: Dry air (instrument air O₂: 20.95 vol%) or standard gas containing O2 gas with a concentration of 80 to 100 % of the span

value (balance nitrogen).

Auxiliary gas pressure:

N₂, 180 kPa (Approx. 35 ml/min)

Note: Auxiliary gas should not contain O2 gas with a concentration equal to or greater than 0.1 % of the upper range value.

Measurement gas condition:

200ml/min ±10 %, The gas flow rate may Flow: 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. 3 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;

100 to 115 V AC Reted voltage range: 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

GB30439 Part 1

Installation altitude: 2000 m or less

Installation category: Pollution degree:

Note: Installation category, called overvoltage category, specifies impulse withstand voltage. Pollution degree indicates the degree of existence of solid, liquid, gas or other inclusions which may reducedielectric strength.

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: 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.

90% response within 3 sec. Response time:

(from changing analog output at measured gas flow rate 200 ml/min.)

±1.5% or less of F.S. / Week Zero drift: 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

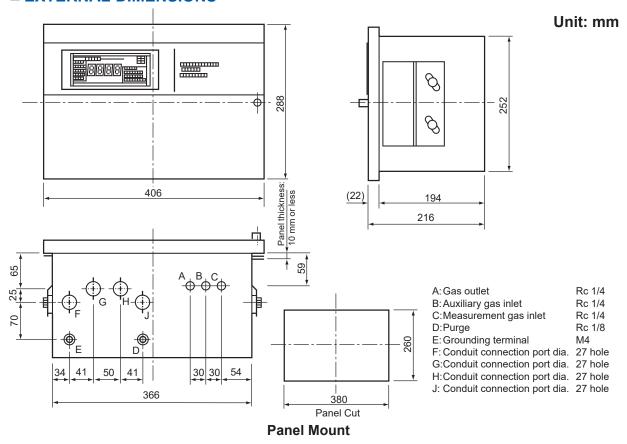
Model	Suffix Code						Option	Description			
MG8G							Paramagnetic oxygen analyzer				
Measurement range	-M	-M					0 - 5 to 25 vol%O2				
Wetted material		A					SUS316, Fluorine-contained				
Power supply	-2 -5									200 - 240V AC, 50/60Hz 100 - 115V AC, 50/60Hz	
Auxiliary gas	ry gas			-W						N2 gas	
Flow rate of auxiliary gas			L					Standard (35 ml /min)			
Language				-E				English Japanese			
Auto calibration -C				-c			available				
Style code				*C		Style *C					
Option					/B1	Balance gas: CO2 (20%)+N2/N2					

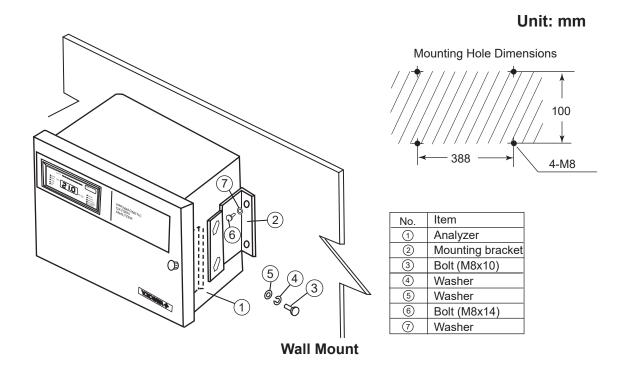
Note: Consult Yokogawa for balance gas other than option "/B1."

■ STANDARD ACCESSORIES

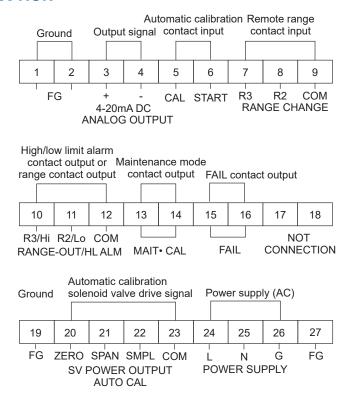
Item	Parts No.	Qty	Description
Fuse	A1111EF	2	250V 2A
Spanner	G7050YZ	1	for adjustment of sensor angle
Regulator	G7033XF	1	for Auxiliary gas
Mirror	K9320CC	1	for adjustment of sensor angle
User's Manual	_	1	

■ EXTERNAL DIMENSIONS





■ WIRING CONNECTION



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 :	4. Ir
Tag No. : Plant name :	Te
Sampling point:	Co
	Vi
Utilities and Installation Conditions	Lo
Power supply :V AC ±%,Hz Air supply (instrument air) : pressurekPa	ar □
Steam : pressurekPa temperature°C	5. S
Cooling water : temperature°C Distance between sampling point and analyzer	
: m ; feet	
Distance between analyzer and control panel : Approx m ; feet	
3. Process Conditions	
3. I Tocess Conditions	

D	Concentration (vol%)				
Process Gas Component	Nor.	Max.	Min.		
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
Process pressure (kPa)					
Process temperature (°C)					
Dust (g/Nm³)					
Water content □ vol%, □ °C, □ °F Saturated					
Corrosiveness	□ No □ Yes				

4. Installation C	ondition	S		
Temperature			C; Min F; Min	
Corrosive gases				
Vibration	: □ No	☐ Yes		
Location where are installed:	the anal	yzer and	sampling s	ystem
☐ Indoors	□ Outdo	oors	☐ Other_	
5. Scope of Esti	mate			
☐ Model MG8G		anetic O	vvaen Anal	VZOr
LI MOGET MICOC) i araine	ignetic O		
☐ Auxiliary gas	pressure	e meter		/ set
☐ Auxiliary gas			□ 40 I	
	-			/ set
□ Auxiliary gas	pressure	e reducino	g valve	
				/ set
□ Zero gas cyli	nder	□ 10 I	□ 40 I	
7				/ set
□ Zero gas pre	ssure ae	aucing va	aive	/ oot
□ Span gas cyl	inder	□ 10 I	□ 40 I	/ set
Range of	to	vol%O	L 701	/ set
Range of	to	vol%0	2	/ set
☐ Span gas pre				
1 0 1		J		/ set
☐ Spare parts f				/ set
☐ Sampling pro	be (*)		/ set	
☐ Sampling sys	stem (*) _		/ set	

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