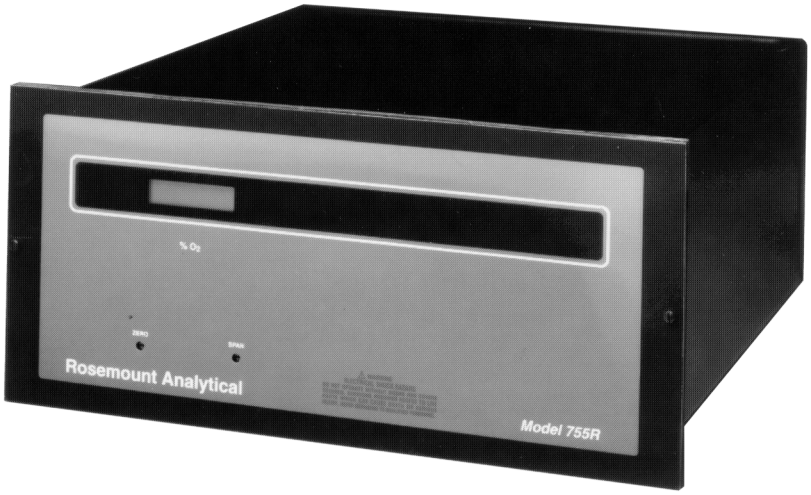
Product Data Sheet
PDS 103-755R.A01
September,1999

Paramagnetic Oxygen Analyzer (For Rack Mounting)

- Measures Oxygen in Stationary Source Monitoring Applications
- ±0.01% O_2 Minimum Detectable Level
- Standard 19" Rack Mounting
- 7 Field Selectable Ranges
- Remote Range Selection
- Long Term Continuous Operatior
- Small, Rugged, Shock Resistant Sensing Unit



FEATURES

Designed for continuous O_2 measurement, the Model 755R Paramagnetic Oxygen Analyzer delivers top performance and reliability. With a wide variety of field selectable ranges, alarm and current output options, and a small, rugged sensing unit, the Model 755R is designed to meet the requirements of a wide variety of applications. Applications include process control, Continuous Emissions Monitoring Systems (CEMS), industrial gas production, and fermentation process monitoring. The paramagnetic measurement technique offers distinct operating advantages of faster response and linear output over techniques such as thermal conductivity and electrochemical sensing.

Featuring a sensitivity of ±0.01 % oxygen, the Model 755R Paramagnetic Oxygen Analyzer delivers accurate measurement over a wide selection of fullscale ranges. Optional remote range selection allows the user to have the ability to switch between five ranges from a remote location.

Simplified operation and maintenance of the Model 755R are assured by the convenience of front pull out access to all serviceable parts and operating controls.

A 4 1/2-digit backlighted LCD display insures high visibility of oxygen concentration readout at all levels of ambient light. Designed for selectable range operation, the Model 755R front panel includes recessed zero and span controls, leaving a clean, modern instrument look.

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PRINCIPLE OF OPERATION

The Model 755R measures the paramagnetic susceptibility of oxygen, which is much higher than the susceptibility of other common gases. When oxygen is present in a magnetic field, the oxygen tends to concentrate in the area of the magnetic fields. Even though the Model 755R measures the total susceptibility of the sample, it is almost entirely due to the oxygen present, so the measurement is an accurate indication of oxygen content.

The test body is mounted on a platinum suspension in a non-uniform magnetic field (see Figure 1). The magnetic force exerted upon the test body is proportional to the difference in the volume magnetic susceptibilities of the test body and the surrounding gas. If the gas is more paramagnetic that the test body, the magnetic force tends to repel the test body; and if the gas is less paramagnetic, the magnetic force tends to attract the test body into the magnetic field.

A diamond-shaped mirror is mounted in the platinum suspension and reflects light from a pre-focused light source equally onto two photocells when the test body is in the neutral position.

When the volume magnetic susceptibility of the gas increases, a magnetic force is applied to the test body, tending to rotate it out of the field. The suspension mirror on the test body also rotates, so that the photocells become unequally illuminated, and, through an amplifier, apply feedback current to the test body. The electromagnetic force generated by the feedback current is opposite and almost equal to the magnetic force. As a linear function of the oxygen concentration, this feedback current is easily converted to an analog output signal which is used for readout and recording purposes.

SPECIFICATIONS*

Physical Specifications

Case Mounting: Rack mounting, 19 inch (IEC 297-1, 1986)

Case Classification: General Purpose

Weight: 46 lbs. (21 kg)

Dimensions: 19.0 x 8.7 x 19.2 inches
482.2 x 221 x 487 mm (W x H x D)

Physical Performance Specifications

Range
Standard: 0 to 5, 0 to 10, 0 to 25, 0 to 50, and 0 to 100 % oxygen
Optional: 0 to 1, 0 to 2.5, 0 to 5, 0 to 10, 0 to 25, 0 to 50, and 0 to 100 % oxygen

Remote Range Selection: Maximum 5 ranges (See matrix for range selection options)

Response Time: 90% of fullscale, 20 seconds

Reproducibility: ± 0.01% oxygen or ± 1% fullscale, whichever is greater

Ambient Temperature Limits
Maximum: 113°F (45°C)
Minimum: 32°F (0°C)

Zero and Span Drift: ± 1% fullscale per 24 hours, provided that ambient temperature does not change by more than 20°F (11.1°C).

±2.5 % of fullscale per 24 hours, with ambient temperature change over entire range

Electrical Specifications

Supply Voltage and Frequency
Standard: 115 VAC ± 10%, 50/60 Hz
Optional: 230 VAC ± 10%, 50/60 Hz

Power Consumption: 300 W maximum, 75 W nominal

OUTPUTS
Standard: Field selectable voltage output of 0 to 10 mV, 0 to 100 mV, 0 to 1 V, or 0 to 5 VDC
Optional: Isolated current output of 0 to 20 mA or 4 to 20 mA is obtainable through plug-in of optional circuit board

Optional Alarms Specifications: Dual (high and low) independently-adjustable alarms. Form C contact ratings

Alarm Contact Rating:
5 A, 240 VAC resistive
5 A, 120 VAC resistive
5 A, 28 VDC resistive

Setpoint: Adjustable from 1 % to 100 % fullscale

Deadband: Adjustable from 1 % to 20 % fullscale. Factory set to 10 % of fullscale

Sample Specifications

Sample Dryness: Sample dewpoint below 110°F (43°C); sample free of entrained liquids

Sample Temperature Limits
Maximum: 150°F (65°C)
Minimum: 50°F (10°C)

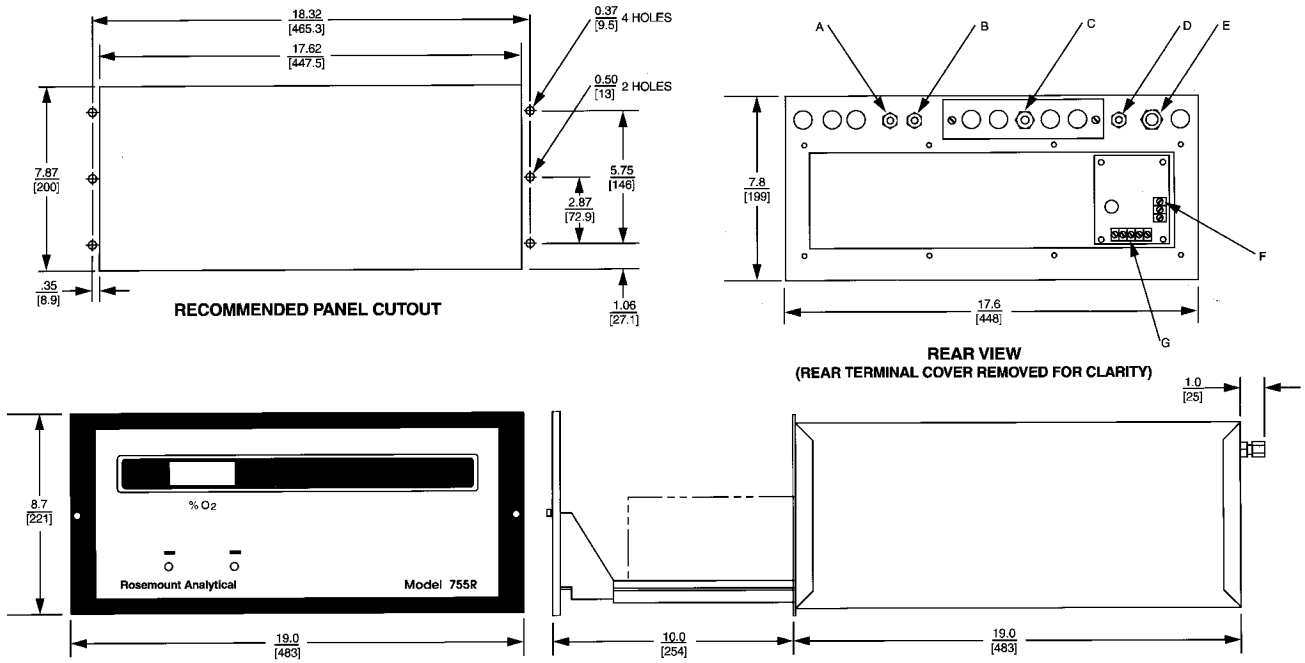
Operating Pressure Limits
Maximum: 10 psig (69 kPa)
Minimum: 5 psig vacuum (34.5 kPa vacuum)

Sample Flow Rate
Maximum: 500 cc/min.
Minimum: 50 cc/min.
Recommended: 250 ±20 cc/min.

Materials in Contact with Sample Gas: Glass, 316 stainless steel, titanium, Paliney No 7**, epoxy resin, Viton A***, platinum, nickel and MgF_2.

* Performance specifications are measured at recorder output and are based on constant sample pressure and deviation from set flow held to within 10 % or 20 cc/min., whichever is smaller.
** Paliney No. 7 is a trademark of J.M. Ney Co., Hartford, CT
*** Viton A is a trademark of E.I. duPont de Nemours Co.

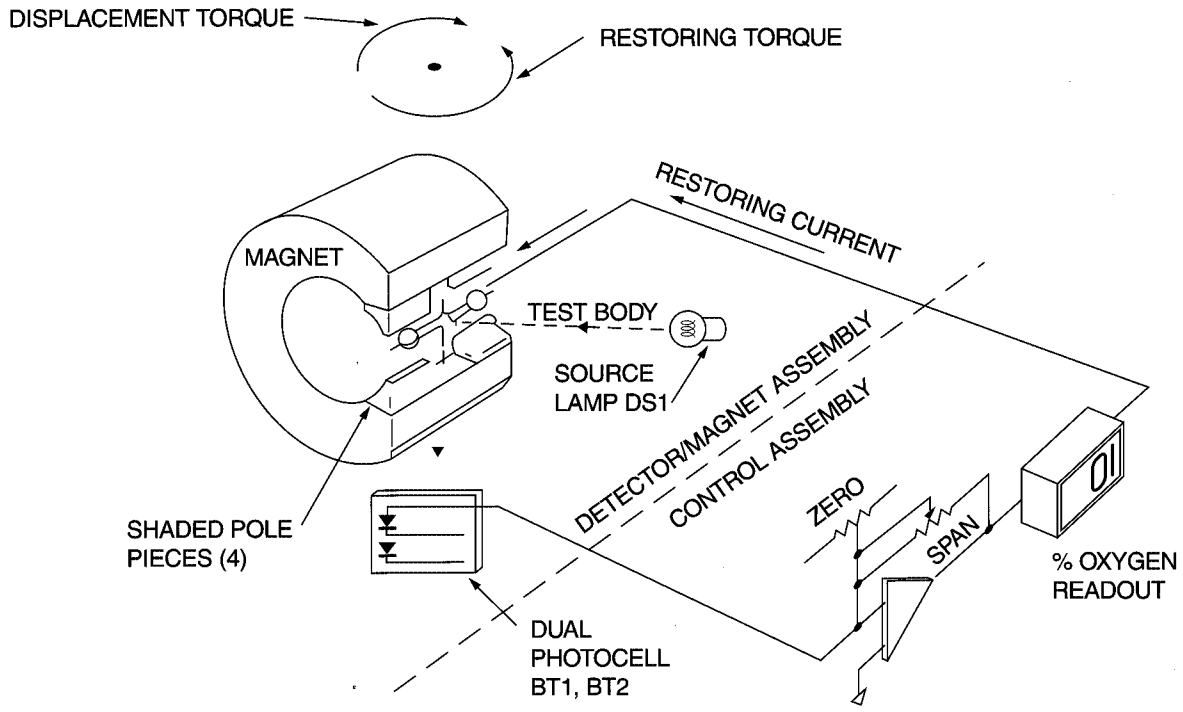
Note: The Model 755R is intended for use as an industrial process measurement device only. It is not intended for use in medical, diagnostic, or life support applications.



NOTES:

A. SAMPLE OUTLET, .25 INCH TUBE FITTING
B. SAMPLE INLET, .25 INCH TUBE FITTING
C. ONE .625 DIA HOLE FOR DUAL ALARM OPTION CABLE (CABLE SUPPLIED BY CUSTOMER, MINIMUM 24 AWG)
D. ONE .625 DIA HOLE FOR RECORDER OUTPUT CABLE (CABLE SUPPLIED BY CUSTOMER, 2 CONDUCTOR, MINIMUM 18 AWG)
E. .812 DIA HOLE FOR POWER CABLE (CABLE SUPPLIED BY CUSTOMER, 3 CONDUCTOR, MINIMUM 18 AWG)
F. TB1, CUSTOMER HOOKUP FOR POWER
G. TB2, CUSTOMER HOOKUP FOR RECORDER OUTPUT
H. ALARM ASSEMBLY CONNECTIONS

FIGURE 1



ORDERING INFORMATION

7553	MODEL PARAMAGNETIC O_2 ANALYZER

CODE	RANGE
00	Standard – 0 to 5, 10, 25, 50 and 100 % O_2
01	Extended – 0 to 1, 2.5, 5, 10, 25, 50 and 100 % O_2*
09	Special

CODE	OUTPUT
0	Standard Voltage: 0 to 10 mV, 100 mV, 1 V, and 5 VDC
1	Current: 0/4 to 20 mA
9	Special

CODE	ALARM
0	No Alarm
1	Dual Alarm
9	Special

CODE	CASE
0	Standard
1	Standard with Tropicalization
9	Special

CODE	OPERATION
0	115 VAC, 50/60 Hz
1	230 VAC, 50/60 Hz
9	Special

CODE	REMOTE RANGE
0	No Remote Range
1	Remote Range (Standard) 0 to 5, 10, 25, 50, 100 %
2	Remote Range (Extended) 0 to 1, 2.5, 5, 10, 25 %*
3	0 to 1, 2.5, 5, 10, 50*
4	0 to 1, 2.5, 5, 25, 50*
5	0 to 1, 2.5, 5, 25, 100 %*
6	0 to 1, 2.5, 10, 25, 100 %*
9	Special

CODE	FEATURES
0	As Selected
9	Special

7553	00	0	0	0	0	0	0	(Example)

* Extended Remote Ranges must be ordered with extended range (i.e. Range Option Code 01)

ORDERING MATRIX - 12 POSITIONS

ACCESSORIES (Order as separate line item)

PART NUMBER	DESCRIPTION
748213	Instruction Manual
654008	Kit, Power Cord/Enclosure Supports (10 Ft. North American Power Cord Set Plus 4 Enclosure Supports for Bench Mounting)
634958	Kit, Enclosure Supports (4) only for Bench Mounting
634061	Power Cord (10 Ft. North American) Only
624446	Z Purge

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