


OREC™ DM–100 Series Ozone Monitors: Description



The OREC™ DM–100 Series Ozone Monitors are a continuous ozone measurement instrument for the determination of ozone in air or oxygen. The standard instrument provides the range of 0 – 1000 ppm (parts per million) by volume, displayed on a panel mounted digital readout meter. The DM–100 Series also alternately displays ozone concentration in millipascals (mPa).

The principle of ozone measurement is the absorption of ultraviolet light by ozone as determined by the  [Beer–Lambert Absorption Law](#).

This, in conjunction with the standard gas laws for temperature and pressure correction, is recognized by the EPA as the preferred method used in the calibration of ambient ozone analyzers.

[ASTM D4575](#) (Volume 09.01) states: “UV absorption is adopted as the reference method against which other ozone measurement instruments shall be calibrated.”

The OREC™ DM–100 Series Ozone Monitors incorporate an ultraviolet light source, a narrow band 254 nm interference filter and a phototube for measuring light intensities. Ultraviolet light passing through a sample of gas containing no ozone is measured and the value stored. This value is then compared to the light intensity with ozone present.

The two values are sent to a signal processor which calculates the ozone concentration using the Beer–Lambert equation, providing non–linear approximations, but accurate over the entire range of the instrument.

The signal processor also includes automatic temperature compensation and a front panel mounted potentiometer calibrated to the barometric pressure is provided for manual pressure compensation.

The OREC™ DM–100 Series Ozone Monitors are unique in that a single instrument provides accurate measurement from 0 – 1000 ppm, with three ranges for increased sensitivity. Recognizing the requirement for rapid Ozone measurement, the instrument incorporates design features which minimize warm–up time.

Whether your requirement is for ambient air monitoring, ozone test chamber measurement, plant safety monitoring, research, control of ozone monitors or other applications, the OREC™ DM–100 Series Ozone Monitors fulfill the need for accurate, reliable and automatic ozone monitoring.

This, combined with the widest range, shortest warm–up period, and maximum updated reading time of any available monitor make the OREC™ DM–100 Series the industry's choice!

OREC™ DM–100 Series Ozone Monitors: Features

- Absolute Calibration based on Beer–Lambert Absorption Law;
- Two Minute Warm–Up Time;
- No Chemicals Required;
- Automatic Zeroing;
- Automatic Temperature Compensation;
- Calibrated Pressure Compensation;
- Direct Reading Digital Display;
- Specific to Ozone;
- Rapid and Accurate;
- 0 – 1000 PPM Measurement;
- Three Operating Ranges.

OREC™ DM–100 Series Ozone Monitors: Specifications

Full Measurement Span:	0 – 1000 ppm/vol
Ranges:	0 – 10; 0 – 100; 0 – 1000 ppm/vol
Sensitivity:	0.1% of Range
Accuracy:	3% of Reading
Repeatability:	the larger of 1% or 1 digit
Zero Drift:	Readout 0% (auto–zeroed) Analog output 0.5% Max
Span Drift:	Readout 0.1% Analog output 0.5% Max
Linearity:	± 0.5%
Response Time:	5 Seconds
Sample Measurement Period:	45 seconds / minute
Gas Sampling:	Nominal 2 l/min (± 1 l/min)
Temperature Compensation:	Automatic 0 – 100 C° ±1 C°
Pressure Compensation:	400 – 1000 ± 2.5 mm Hg
Recorder Output Scales:	.1x, .2x, .5x, 1x of Ranges
Recorder Output Voltage:	0 – 1 V on all scales
Connections:	¼" (6.35 mm) Tube fittings
Weight:	30 lbs (13.6 kg)
Dimensions:	12.25 x 21.0 x 5.75 in (311 x 533 x 146 mm)
Power Requirements:	115 or 220 ± 10% VAC 60/50 Hz

OREC™ DM–100 Series Ozone Monitors: Options

- DM–110 High Concentration Ozone Monitor Range: 0 – 100 Mg/SL (0 – 8% wt);
- Strip Chart Recorder (dry, inkless, 30 day);
- Alarm Output (adjustable 0 – full range);
- Automatic Control System;
- NEMA 12 Enclosure;
- 220 VAC Power.

OREC™ DM–100 Series Ozone Monitors: Available Basic Models

Model	Part Number	Power Requirement	Description
DM–100	1100976	115 VAC 60/50 Hz	Ambient
DM–100	1101919	115 VAC 60/50 Hz	Ambient w/ alarm
DM–100	1104377	230 VAC 60/50 Hz	Ambient
DM–100	1104370	230 VAC 60/50 Hz	Ambient w/ alarm
DM–110	1100977	115 VAC 60/50 Hz	High concentration
DM–110	1104371	230 VAC 60/50 Hz	High concentration

NIST Primary Traceability & ISO/IEC 17025 Accredited Laboratory



National Institute of Standards and Technology
Primary Traceability

[NIST Report of Analysis 839.03-03-155](#)
[NIST Report of Analysis 839.03-05-168](#)

ISO/IEC 17025

Accredited Laboratory

[Calibration Certificate 1424.01](#)
[Mechanical Testing Certificate 1424.02](#)

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