

GE Sensing

Features

- Every analyzer is factory calibrated and ready to use.
 - The non-depleting sensor requires little or no re-calibration over time.
 - Five-year sensor warranty. No periodic sensor replacements.
 - With the Stab-El™ option, no acid scrubbing is required for trace levels.
 - Long term liability – the sensor never requires rebuilding or replacement.
 - Flexibility – allows use in Class 1, Division 1 or 2 areas.
 - Low Maintenance – the non-depleting sensor requires little or no re-calibration over time.
 - Stab-El™ (optional patented electrolyte system) – allows measurement in the presence of acid gases.
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DF-100E Series Oxygen Analyzers

GE Industrial, Sensing is proud to distribute the Delta F 100E Series of products for the Oxygen Analyzing Industry.



Delta F's Unique Sensor Technologies

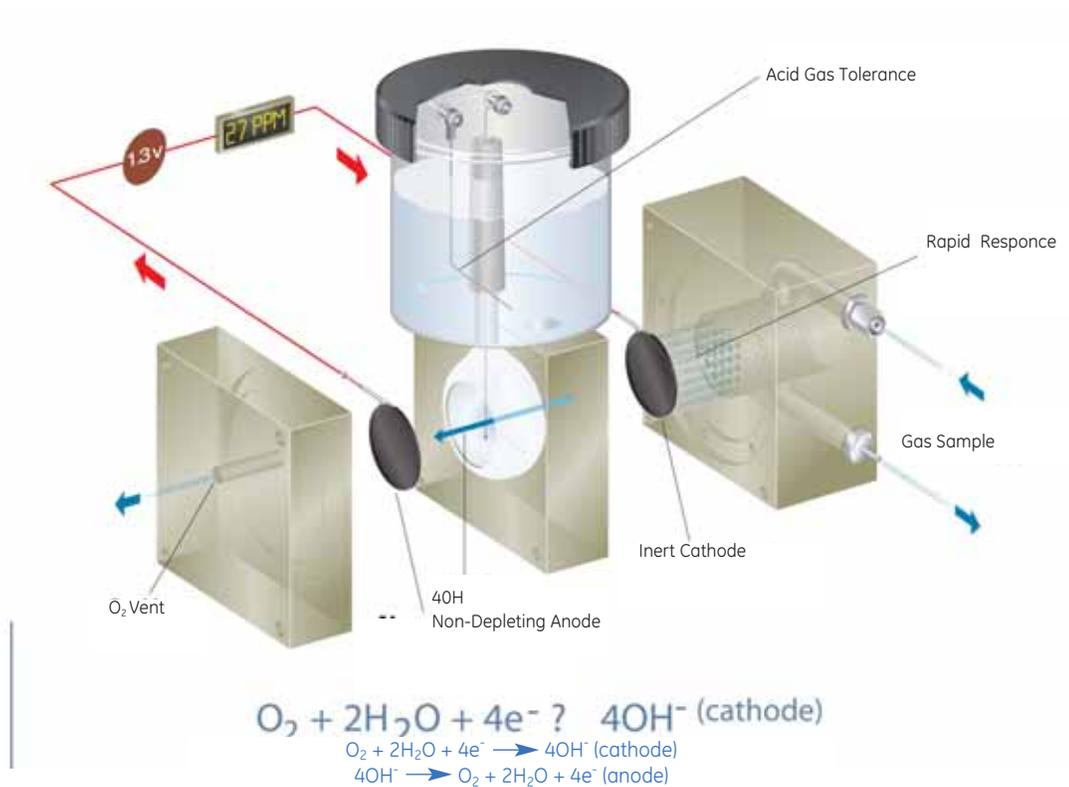
The E-Sensor is Delta F's revolutionary non-depleting coulometric sensor technology reinvented. To create significant performance gains, we went back to the beginning, undertaking extensive research and engineering to determine and address the best way to enhance performance. After a significant investment in time and money we:

- changed materials of construction for the cathode electrode system
- developed a new cathode electrode system abrication process
- eliminated the carbon anode in favor of a proprietary high purity non-carbon anode
- developed new sensor assembly and conditioning processes
- eliminated impurities in the raw materials of the electrode systems, processing of the electrodes and the electrolyte
- developed new electrolyte formulations and high purity replenishment solution

The end result has been an explosion in performance. Performance enhancements include:

- improved purge-down time
- improved upset recovery
- elimination of the need for Quick Start
- improved speed of response
- extended range of operation/low end resolution
- improved linearity and accuracy
- improved baseline stability
- improved temperature stability
- 25% improvement in hardness/acid gas tolerance
- 50% reduction in fluid-loss and accompanying maintenance

These technological advancements are further proof of our commitment to helping our customers maintain their leadership positions. The E-Sensor will help sustain Delta F oxygen analyzers' best-in-class performance well into the future.



DF-130E Cost-Effective Oxygen Analyzer

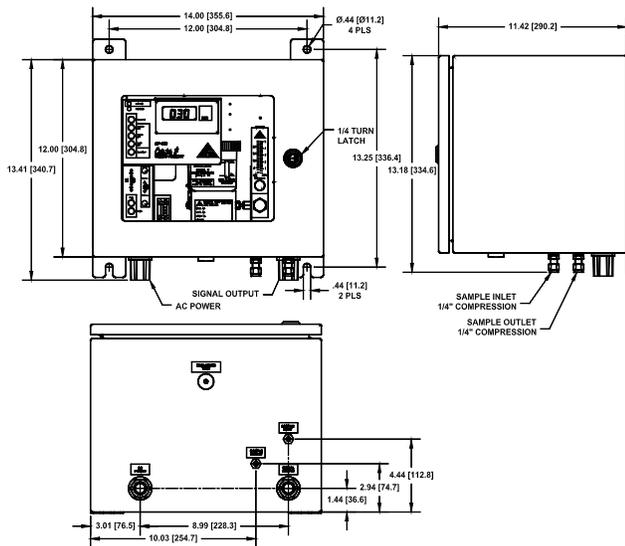
The DF-130E is designed to provide reliable, dependable and accurate measurements at an economic price. You just take it out of the shipping container and start monitoring. Depending on the application, the ultra-stable sensor can operate for years without recalibration. The only maintenance requirement is the occasional addition of replenishment solution and an alarm is included.

The DF-130E offers limited options from plumbing, analog outputs and miscellaneous features.

DF-140E Oxygen Analyzer for Harsh Environments

The DF-140E Oxygen Analyzer provides oxygen measurement in a wide variety of environments, including outdoors (with the Type 4X enclosure) and in explosive environments (with the Type 7 remote sensor enclosure). The DF-140E Oxygen Analyzer features Delta F's exclusive non-depleting electrode technology for reliable readings without frequent recalibration and periodic sensor replacement.

The DF-140E offers a wide range of options for remote sensor placement, hazardous area enclosures, alarm relays, plumbing, analog outputs and miscellaneous features.

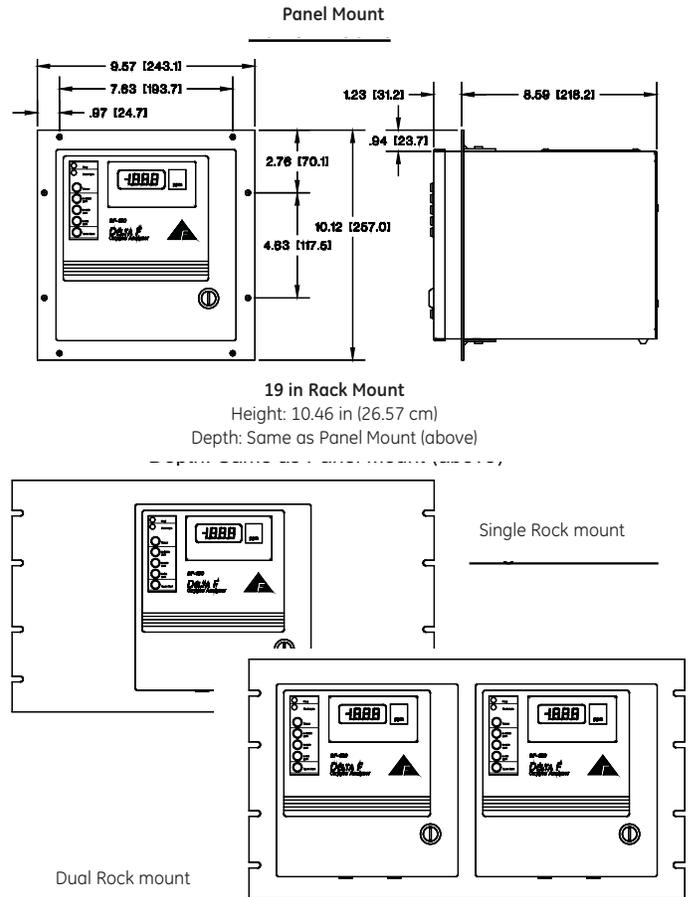


Outline Dimensions for DF-140E

DF-150E Custom-Configured Oxygen Analyzer

Every DF-150E is custom configured under ISO-9001 controls to your specification, calibrated to standards traceable to NIST and operated for several days to ensure flawless performance. You just take it out of the shipping container and start monitoring. Depending on the application, the ultra-stable sensor can operate for years without recalibration. The only maintenance requirement is the occasional addition of replenishment solution and an alarm is included.

The DF-150E offers a wide range of options for remote sensor placement, hazardous area enclosures, alarm relays, plumbing, analog outputs and miscellaneous features.



Outline Dimensions for DF-130E and DF-150E

DF-100E Series Specifications

Range

Ranges are available from 0 - 10 ppm to 25%

Sample Gas Compatibility

- Standard sensor: All inert and passive gases, including N₂, H₂, CO, freons, hydrocarbons, etc.
- Sensor with Stab-El™ option: Neutralizes trace contaminants including acids such as CO₂, H₂S, Cl₂, NO_x, SO_x, etc. (Consult GE Sensing for concentration limits.)

Accuracy

The greater of ±3% reading or 0.5% of range below 2.5 ppm.

Response Time

Responds instantaneously to oxygen change. Equilibrium time depends on specific conditions. Typically less than 10 seconds to read 90% of a step change.

Gas Sample Requirements

- Temperature: 0 to 150°F (-17.8 to 66°C)
- Flow from 1.0 to 3.0 SCFH
- Pressure: 0.2 to 1.0 psig pressure, vent to atmosphere

Dimensions (w x h x d)

- 7.75 in X 8.5 in X 10 in (197 mm X 216 mm X 254 mm) (for DF-130E and DF-150E)
- 14 in X 13.18 in X 11.42 in (356 mm X 335 mm 290 mm) (for DF-140E)

Enclosures

- Type 1 (for DF-130E and DF-150E)
- Type 4X (for DF-140E)

Gas Connections

- 1/8 in compression (for DF-130E and DF-150E)
- 1/4 in compression (for DF-140E)

Weight

- 15 lbs (7 kg) (for DF-130E and DF-150E)
- 30 lbs (13.6 kg) (for DF-140E)

Ambient Operating Temperature

32°F to 120°F (0°C to 49°C)

Power Input

115 VAC, 50/60 Hz or 230 VAC, 50/60 Hz

Output Signal

- 0 - 10 VDC
- 0 - 1, 0 - 2, 0 - 5 VDC (optional)
- Isolated 4-20 mA DC (optional)

Optional Alarms

For DF-130E

- Low or high oxygen (adjustable setpoint, relay contacts only)

For DF-140E and DF-150E, Choice of Two

- Low flow (relay contacts and visual),
- Low or high oxygen (adjustable setpoint, relay contacts only)

Alarm Relay Rating

- SPDT - 5 amps at 110 or 220 VAC
- CE Version: 3 amps at 30 VDC
- Failsafe action

Display

- 3.5 digit LCD
- 4.5 digit LCD (range dependent)

Certifications

- CE conformance (optional)
- ETL CSA equivalent certification (for DF-150E)

Configuration and Installation

GE Sensing provides comprehensive assistance for broad variety of application problems, including measurements of semiconductor specialty gases. Depending on the model, Delta F analyzers can be configured to provide a wide choice of outputs for data collection and process control systems.



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