DF-150E Oxygen Analyzer
Standard Features & Specifications

**Performance**

**Accuracy:** (at constant conditions)
The greater of +/- 3% Reading or 0.5% of Range Below 2.5 ppm

**Response Time**
Responds instantaneously to O₂ change
Typically less than 10 seconds to read 90% of a step change

**Range**
Ranges are available from 0-10 ppm to 25%

**Ambient Operating Temperature**
32º to 120º F (0º to 50º C)

**Background 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, NOₓ, SOₓ, etc. (Consult Delta F for concentration limits)

**Gas Sample Conditions**

**Sample Pressure**
Operating limits:
- 0.2 to 1.0 psig (1.03 to 1.08 BarA) - Standard
- 2.0 psi vacuum to 0.2 psig (.88 to 1.03 BarA) use pump
- 1.0 to 10 psig (1.08 to 1.7 BarA) use valve or regulator
Above 10 psig (1.7 BarA) use regulator

*Sensor overpressure damage limit: 10 psig (1.7 BarA)*

**Return Pressure:**
Atmospheric Vent (optimal)
*Limits*: +5 psig (1.36 BarA) to –5 psig (0.67 BarA)

**Flow Rate:**
1.0 to 3.0 SCFH (0.5 to 1.5 slpm)

**Temperature (Gas Sample):**
0º to 150º F (-17.8º to 66ºC)

**Moisture:**
No limits (avoid condensation)

**Oil/Solvent Mist:**
< 0.5 mg/ft³ (standard)
> 0.5 mg/ft³ – use filter

**Solid Particles:**
< 2 mg/ft³ (standard)
> 2 mg/ft³ use filter

**Gas Flow System**

**Construction Materials:**
304 and 316 SS

**Gas Connections:**
1/8” compression tube fittings

**Construction**

**Enclosure:**
NEMA 1

**Weight:**
15 lbs. (7 kg.)

**Dimensions:**
7.75” W x 8.5” H x 10” D
(19.7 cm W x 21.6 cm H x 25.4 cm D)

**Electrical**

**Power Input:**
115 VAC, 50/60 Hz or
230 VAC, 50/60 Hz

**Output Signals:**
0-10 VDC (standard),
OR 0-1, 0-2, 0-5 VDC (optional)
Isolated 4-20 mA DC (optional)

**Alarm, visual**
Electrolyte Condition (standard)

**Alarms, optional**
Low Flow (relay contacts and visual),
Low Oxygen or High Oxygen
(adjustable set-point, relay contacts only)

**Alarm Relay Rating**
SPDT - 5 amps at 110 or 220 VAC
CE version: 3 Amps at 30 VDC
Failsafe Action

**Indicators, optional**
Sensor Off, Remote Range,
Low Flow (contacts only)
No Failsafe Action

**Indicator Contact Rating**
SPST – 0.5 amps at 24 VDC
or SPTT - 0.5 amps at 24 VDC

**Display:**
3.5 Digit LCD
or 4.5 Digit LCD (range dependent)

**Certifications:**
ETLC CSA Equivalent Certification
CE Conformance (optional)

**Panel Mount**
Height: 10.46” [26.57 cm]
Depth: Same as Panel Mount (above)

**19” Rack Mount**
Height: 10.46” [26.57 cm]

**Single Rack Mount**

**Dual Rack Mount**
DF-150E Oxygen Analyzer

Optional Equipment

### Base Models

#### Single Range Analyzers

<table>
<thead>
<tr>
<th>PPM Range</th>
<th>DF-150E Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 5,000</td>
<td>151E-5000</td>
</tr>
<tr>
<td>1,000</td>
<td>151E-1000</td>
</tr>
<tr>
<td>500</td>
<td>151E-500</td>
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<tr>
<td>100</td>
<td>151E-100</td>
</tr>
<tr>
<td>50</td>
<td>151E-50</td>
</tr>
<tr>
<td>10</td>
<td>151E-10</td>
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</table>

<table>
<thead>
<tr>
<th>% Ranges</th>
<th>DF-150E Model</th>
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</thead>
<tbody>
<tr>
<td>0 to 25%</td>
<td>151E-P25</td>
</tr>
<tr>
<td>10%</td>
<td>151E-P10</td>
</tr>
<tr>
<td>5%</td>
<td>151E-P5</td>
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<tr>
<td>1%</td>
<td>151E-P1</td>
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</table>

#### Three Range Analyzers

<table>
<thead>
<tr>
<th>PPM Ranges</th>
<th>DF-150E Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>100/1,000/10,000</td>
<td>153E-10000</td>
</tr>
<tr>
<td>50/500/5,000</td>
<td>153E-5000</td>
</tr>
<tr>
<td>10/100/1,000</td>
<td>153E-1000</td>
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<tr>
<td>5/50/500</td>
<td>153E-500</td>
</tr>
<tr>
<td>1/10/100</td>
<td>153E-100</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>% Ranges</th>
<th>DF-150E Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.25/2.5/25 %</td>
<td>153E-P25</td>
</tr>
<tr>
<td>0.1/1/0.1 %</td>
<td>153E-P10</td>
</tr>
<tr>
<td>0.05/0.5/0.5%</td>
<td>153E-P5</td>
</tr>
</tbody>
</table>

### Options

#### Base Options

- **150-S** Stab-El Acid Gas System
- **150-220** 220 VAC Line Voltage (110 VAC is standard)
- **150-CE** CE Conformance

**Remote**

- **150-RPC** Remote Pump Control
  Enables front panel analyzer control of user supplied external pump.
  Power Capacity: 5W @110 VAC (Remote Pump not included)

- **150-RCOBP** Remote Control of On Board Pump
  Permits control of on-board pump via external, user supplied, switch or analyzer front panel.
  Switch Rating: 5W @110 VAC (On-board pump, 150-P, must be ordered separately)

- **150-RS** Remote Sensor
  Remote sensor with flowmeter and mounting bracket

- **150-N4RS** NEMA 4 Remote Sensor
  Includes remote sensor and flowmeter mounted in a NEMA4 enclosure

- **150-N7RS** NEMA 7 Remote Sensor
  Includes remote sensor mounted in a NEMA7 housing with an external flowmeter, H2 Rated Flame Arrestors

- **150-RSH** Remote Sensor Heater

#### Alarms

Choose only 1 alarm option

- **150-OAL** Oxygen Alarm – Low (SPDT relay contacts)
- **150-OAH** Oxygen Alarm – High (SPDT relay contacts)
- **150-FA** Low Flow Alarm (SPDT relay and visual)
- **150-2OAL** Oxygen Alarms – Low-Low (Two 150-OAL)
- **150-2OAH** Oxygen Alarms – High-High (Two 150-OAH)
- **150-OALH** Oxygen Alarms – Low-High (150-OAL & 150-OAH)
- **150-OAHL** High Oxygen &-Flow Alarm (150-OAH & 150-FA)
- **150-OALF** Low Oxygen &-Flow Alarm (150-OAL & 150-FA)

#### Indicators

- **150-SOI** Sensor Off Indication (SPST contacts only)
- **150-RRI** Remote Range Indication (SPTT contacts only)
- **150-LFI** Low Flow Indicator (SPST contacts only)

**Notes:**

1. Not Available with CE Certified Analyzers
2. Suggested for flammable gases. Not available with on-board pump, 150-P.

### Cabinet

- **150-PM** Panel Mount
- **150-SRM** Single Rack Mount
- **150-DRM** Double Rack Mount

### Plumbing

- **150-P** Pump with Down Stream Control Valve
  Diaphragm pump for negative pressures to 2.0 psi vacuum (0.88 BarA), or outlet vent back pressure to 3.0 psig (1.2 BarA)
  (Not compatible with NT-SSOL)

- **150-PR** Gauge Pressure Regulator
  Out-board 316 Stainless Steel Pressure Regulator, 3000 psig (208 BarA) inlet capacity; 0-10 psig (1.7 BarA) adjustable outlet pressure.
  Requires 5 psig (1.36 BarA) minimum inlet pressure

- **150-APR** Absolute Pressure Regulator
  Vacuum to 500 psig (35.5 BarA) inlet capacity; 4 psia to 25 psia (-10 to +10 psig) (0.32 BarA to 2.7 BarA) adjustable outlet pressure

- **150-FCV** Flow Control Valve
  Up stream control for pressures less than 10 psig (1.7 BarA)

- **150-SSOL** Stainless Steel Outlet Line

- **150-FH** Filter Housing
  (Includes Standard Filter Element, SFE)

#### Outputs

Choose 1 only of 150-SAOA, B, or C

- **150-SAOA** Special Analog Output 0 to 1 VDC
- **150-SAOB** Special Analog Output 0 to 2 VDC
- **150-SAOC** Special Analog Output 0 to 5 VDC
- **150-420** 4 to 20 mA Isolated Output

### Miscellaneous

- **150-GSF** Gas Scale Factor
  Required for accurate read-out of Oxygen in one additional background gas. Nitrogen is standard. He and H2 require the GSF. For other Gases, contact Delta F.

- **150-SST** Stainless Steel Tag
- **150-RSC** Remote Sensor Cable
- **150-SFE** Standard Filter Element (particle size >1 micron )
- **150-FFE** Fine Filter Element (particle size <1 micron )
- DF E-Lectrolyte Blue Electrolyte
- DF RSA Replenishment Solution