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**
32° to 120° F (0° to 50° 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 Bar) use pump
- 1.0 to 10 psig (1.08 to 1.72 BarA) use valve or regulator
Above 10 psig (1.72 BarA) use regulator

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

**Return Pressure:** Atmospheric Vent (optimal)

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

**Temperature (Gas Sample):**
0° to 150° F (-17.8° to 66°C)

**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:**
1/4” compression tube fittings

Construction

**Enclosure:** NEMA 4X

**Weight:**
30 lbs. (13.6 kg.)

**Dimensions:**
14.0” W x 13.18” H x 11.42” D
(35.6 cm W x 33.5 cm H x 29.0 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 mADC (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 SPSTT - 0.5 amps at 24 VDC

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

**Certifications:**
CE Conformance (optional)
**DF-140E Oxygen Analyzer**

**Optional Equipment**

### Base Models

#### Single Range Analyzers

<table>
<thead>
<tr>
<th>PPM Range</th>
<th>DF-140E Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 5,000</td>
<td>141E-5000</td>
</tr>
<tr>
<td>1,000</td>
<td>141E-1000</td>
</tr>
<tr>
<td>500</td>
<td>141E-500</td>
</tr>
<tr>
<td>100</td>
<td>141E-100</td>
</tr>
<tr>
<td>50</td>
<td>141E-50</td>
</tr>
<tr>
<td>10</td>
<td>141E-10</td>
</tr>
</tbody>
</table>

#### % Ranges

<table>
<thead>
<tr>
<th>DF-140E Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 25%</td>
</tr>
<tr>
<td>10%</td>
</tr>
<tr>
<td>5%</td>
</tr>
<tr>
<td>1%</td>
</tr>
</tbody>
</table>

### Three Range Analyzers

#### PPM Ranges

<table>
<thead>
<tr>
<th>PPM Ranges</th>
<th>DF-140E Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>100/1,000/10,000</td>
<td>143E-10000</td>
</tr>
<tr>
<td>50/500/5,000</td>
<td>143E-5000</td>
</tr>
<tr>
<td>10/100/1,000</td>
<td>143E-1000</td>
</tr>
<tr>
<td>5/50/500</td>
<td>143E-500</td>
</tr>
<tr>
<td>1/10/100</td>
<td>143E-100</td>
</tr>
</tbody>
</table>

#### % Ranges

<table>
<thead>
<tr>
<th>DF-140E Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.25/2.5/25%</td>
</tr>
<tr>
<td>0.1/1/10%</td>
</tr>
<tr>
<td>0.05/0.5/5%</td>
</tr>
</tbody>
</table>

### Options

#### Base Options

140-S  Stab-El Acid Gas System
140-220 220 VAC Line Voltage *(110 VAC is standard)*
140-CE  CE Conformance

#### Remote

140-RPC  Remote Pump Control
Enables front panel analyzer control of user supplied external pump.

140-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, 140-P, must be ordered separately)

140-RS  Remote Sensor
Remote sensor with flowmeter and mounting bracket

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

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

140-EH  Enclosure Heater
Heater and controller used when low ambient temperature, high ambient humidity, or possible sample condensation may occur.

#### Alarms

Choose only 1 alarm option

140-OAL  Oxygen Alarm – Low *(SPDT relay contacts)*
140-OAH  Oxygen Alarm – High *(SPDT relay contacts)*

140-EOA  Low Flow Alarm *(SPDT relay and visual)*
140-EOAL  Oxygen Alarms – Low-Low *(Two 140-OAL)*
140-EOAH  Oxygen Alarms – High-High *(Two 140-OAH)*
140-EALH  Oxygen Alarms – Low-High *(140-OAL & 140-OAH)*
140-OAHF  High Oxygen & Flow Alarm *(140-OAH & 140-FA)*
140-OALF  Low Oxygen & Flow Alarm *(140-OAL & 140-FA)*

#### Indicators

Choose only 1 indicator option

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

#### Cabinet

140-ZPK  Type Z Purge Protection System
For DF140 or NEMA 4 Remote Sensor Enclosure, 140-N4RS. Includes loss of purge pressure switch and enables Class I/II, Div. 2 area use.

#### Plumbing

140-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 Bar)
(Not compatible with NT-SSOL)

140-PR  Gauge Pressure Regulator
Out-board 316 Stainless Steel Pressure Regulator, 3000 psig (206 BarA) inlet capacity; 0-10 psig (1.7 Bar) adjustable output pressure.
Requires 5 psig (1.36 Bar) minimum inlet pressure

140-APR  Absolute Pressure Regulator
Vacuum to 500 psig (35.5 BarA) inlet capacity; 4 psia to 25 psia (-10 to +10 psig) (0.32 Bar to 1.7 BarA) adjustable outlet pressure

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

140-SSOL  Stainless Steel Outlet Line *NOTE 2*

140-FH  Stainless Steel Filter Housing
(Includes Standard Filter Element, SFE)

#### Outputs

Choose 1 only of 140-SAOA, B, or C

140-SAOA  Special Analog Output 0 to 1 VDC
140-SAOB  Special Analog Output 0 to 2 VDC
140-SAOC  Special Analog Output 0 to 5 VDC
140-420  4 to 20 mA Isolated Output

#### Miscellaneous

140-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.

140-SST  Stainless Steel Tag
140-RSC  Remote Sensor Cable
140-SFE  Standard Filter Element *(> 1 micron)*
140-FFE  Fine Filter Element *(< 1 micron)*

DF E-Lectrolyte Blue Electrolyte
DF RSA Replenishment Solution

Notes:
1. Not Available with CE Certified Analyzers
2. Suggested for flammable gases. Not available with onboard pump, 140-P.