

DF-150E Oxygen Analyzer

Standard Features & Specifications

Effective: April 2010

Performance

Accuracy: (at constant conditions)
The greater of +/- 3% Reading or 0.5% of Measurement Range, but not lower than 0.05% of Full Analyzer Range for 3 range analyzers

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, NO_x, SO_x, 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: 0.5 to 1.5 SCFH (0.24 to 0.7 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: 1/8" 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 mADC (optional)

Alarm, visual Electrolyte Condition (standard)

Alarms, optional Low Flow (relay contacts and visual),
Choice of two 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
Fail-safe Action

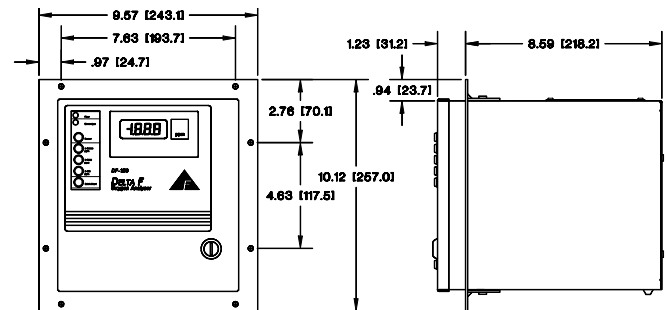
Indicators, optional Sensor Off, Remote Range,
Low Flow (contacts only)
No Fail-safe Action

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

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

Certifications: ETL CSA Equivalent Certification
CE Conformance (optional)

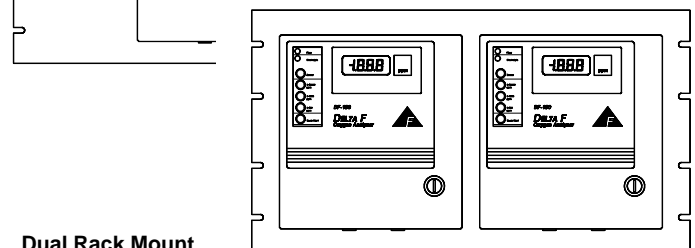
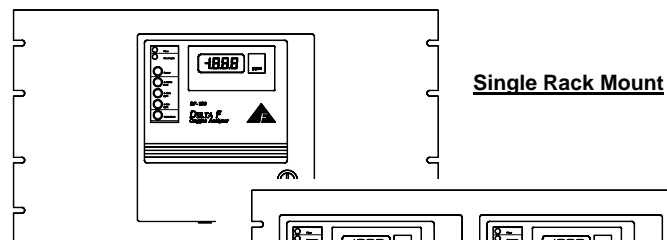
Panel Mount



19" Rack Mount

Height: 10.46" [26.57 cm]

Depth: Same as Panel Mount (above)



DF-150E Oxygen Analyzer

Optional Equipment

Base Models

Single Range Analyzers

PPM Range	DF-150E Model
0 to 5,000	151E-5000
1,000	151E-1000
500	151E-500
100	151E-100
50	151E-50
10	151E-10

% Ranges	DF-150E Model
0 to 25%	151E-P25
10%	151E-P10
5%	151E-P5
1%	151E-P1

Three Range Analyzers

PPM Ranges	DF-150E Model
100/1,000/10,000	153E-10000
50/500/5,000	153E-5000
10/100/1,000	153E-1000
5/50/500	153E-500
1/10/100	153E-100

% Ranges	DF-150E Model
0.25/2.5/25 %	153E-P25
0.1/1/10 %	153E-P10
0.05/0.5/5 %	153E-P5

Options

Base Options

150-S Stab-El Acid Gas System

150-220 220 VAC Line Voltage (110 VAC is standard)

150-CE CE Conformance

Provides added EMI/RFI and conducted interference immunity

Remote

NOTE 1 & Choose only 1 Remote option

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 (UL) 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-OAHF 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) ^{NOTE 1}

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 ^{NOTE 2}

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

Notes:

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