

DF-140E 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 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)
Limits +5 psig (1.36 Bar) 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: 1/4" 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),
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

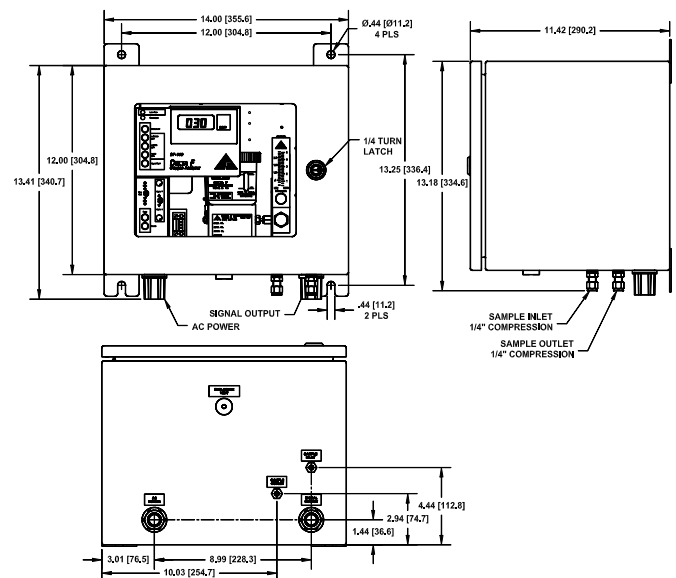
Indicators, optional Sensor Off, Remote Range,
Low Flow (contacts only)
No Fail-safe Action

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: CE Conformance (optional)

Outline Dimensions:



DF-140E Oxygen Analyzer

Optional Equipment

Base Models

Single Range Analyzers

PPM Range	DF-140E Model
0 to 5,000	141E-5000
1,000	141E-1000
500	141E-500
100	141E-100
50	141E-50
10	141E-10

% Ranges	DF-140E Model
0 to 25%	141E-P25
10%	141E-P10
5%	141E-P5
1%	141E-P1

Three Range Analyzers

PPM Ranges	DF-140E Model
100/1,000/10,000	143E-10000
50/500/5,000	143E-5000
10/100/1,000	143E-1000
5/50/500	143E-500
1/10/100	143E-100

% Ranges	DF-140E Model
0.25/2.5/25 %	143E-P25
0.1/1/10 %	143E-P10
0.05/0.5/5 %	143E-P5

Options

Base Options

140-S *Stab-El Acid Gas System*

140-220 *220 VAC Line Voltage* (110 VAC is standard)

140-CE *CE Conformance*

Provides added EMI/RFI and conducted interference immunity

Remote

NOTE 1 & Choose only 1 Remote option

140-RPC *Remote Pump Control*

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

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 (UL) Flame Arrestors

140-EH *Enclosure Heater (Remote or Local)*

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-FA *Low Flow Alarm* (SPDT relay and visual)

140-2OAL *Oxygen Alarms – Low-Low* (Two 140-OAL)

140-2OAH *Oxygen Alarms – High-High* (Two 140-OAH)

140-OALH *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

140-SOI *Sensor Off Indication* (SPST contacts only)

140-RRI *Remote Range Indication* (SPTT contacts only)

140-LFI *Low Flow Indicator* (SPST contacts only) ^{NOTE 1}

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 (208 BarA) inlet capacity; 0-10 psig (1.7 Bar) adjustable outlet 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 on-board pump, 140-P.