THE DIFFERENCE
DELTA F

DF-140E 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 O_2 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 N_2, H_2, CO, freons, hydrocarbons, etc.

Sensor with Stab-EL Option:

Neutralizes trace contaminants including acids such as CO_2, H_2S, Cl_2, 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: 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: 1/4" 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
                                      Failsafe Action

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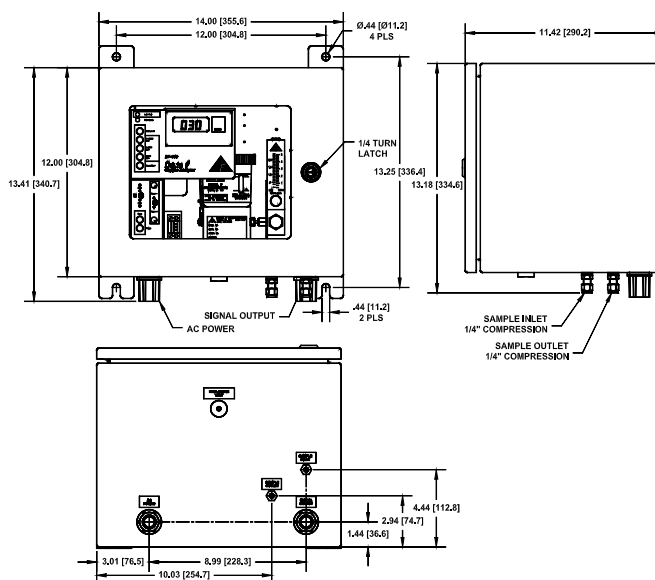   No Failsafe Action

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

Display: 3.5 Digit LCD
                          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 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-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.