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Platinum Series
DF-350 Oxygen Analyzer

The DF-350 is:

- Highly accurate and dependable - the sensor carries a conditional FIVE YEAR WARRANTY.
- Robust - a choice of enclosures allows USE IN GENERAL PURPOSE, CLASS 1, DIVISION 1 OR 2 AREAS.
- Easy to set up and use - REQUIRES NO PRECONDITIONING.
- Low Maintenance - the non-depleting sensor REQUIRES LITTLE OR NO RE-CALIBRATION over time.

The Platinum Series Process Oxygen Analyzer, the standard in oxygen analysis, provides high-accuracy oxygen measurement in a wide variety of environments including outdoors (with the NEMA 4 enclosure) and in explosive environments (with the NEMA 7 enclosure). The analyzer's temperature compensation maintains a stable output even with fluctuating ambient temperatures. The Process Oxygen Analyzer features Delta F's exclusive non-depleting electrode technology for reliable readings without frequent recalibration and periodic sensor replacement.

For more information about Delta F sensor technology and the thousands of companies and applications that use Delta F oxygen analyzers, ask for the Delta F Difference Brochure.

DF-350 Specifications

Range

Ranges are available from 0-50 ppm to 0-25%

Sample Gas Compatibility

STANDARD SENSOR: All inert and passive gases including N_2, CO, H_2, Ar, freons, hydrocarbons, etc.

SENSOR WITH Stab-El™ OPTION: Neutralizes trace contaminants including acids such as CO_2, H_2S, NO_x, SO_x, etc. (Consult Delta F for concentration limits.)

Options

- Enclosures for Class 1, Div. 1 & 2
- CE Conformance
- Panel or Rack Mount
- Oxygen Alarms
- Stab-El™ Acid Gas System
- NiCad Battery Pack
- Password Protection
- Flow Alarm
- Sample Pump
- Isolated 4-20mA Output
- RS232 or RS485

Accuracy

Standard Models: the greater of ±3% of reading or 0.5% of range
High Resolution Models: the greater of ±3% of reading or 0.02% of range (except for ranges <100 ppm: ±3% of reading or ±0.05% of range)

Response Time

Responds instantaneously to O_2 change. Equilibrium depends on specific conditions. Typically <20 seconds to read 90% of a step change.

Sample Requirements

Gas phase, non-condensing, 0° to 150° F.
Flow should be 1.0 to 3.0 scfh at 0.2 to 1.0 psig pressure (except 15-25psig for FAH0050 without pump).





Configuration and Installation

Delta F provides comprehensive assistance for a broad variety of application problems including sample gases with acids, hydrocarbons, particles and other contaminants. Depending on the model, Delta F analyzers can be configured to provide a wide choice of outputs for data collection and process control systems. Most Delta F analyzers can be configured for remote operation and all can be ordered with classified area enclosures. Contact your Delta F rep for an Applications Data Sheet and pricing information.

THE DIFFERENCE DELTA F

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DF-350 Process Oxygen Analyzer
Standard Features & Specifications

Performance

Accuracy: (at constant conditions)
Standard Models: the greater of ±3% Reading or 0.5% of Range
High Resolution Models: the greater of ±3% Reading or 0.02% of Range
(except for ranges < 100 ppm: ±3% Reading or 0.05% of Range

Oxygen Sensitivity
Minimum detectable change 3 ppb (FAH0050 model)

Response Time
Responds instantaneously to O_2 change. Typically less than 20 seconds to read 90% of a step change.
(Equilibrium time depends on specific conditions.)

Range Ranges are available from 0-50 ppm to 25%

Ambient Operating Temperature
32° to 113° F (0° to 45° 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 1.06 Bar) – Standard
15-25 psig with welded sample inlet (orifice restricted)
2.0 psi vacuum to 0.2 psig (.88 to 1.03 Bar) use pump
1.0 to 10 psig (1.08 to 1.7 Bar) use valve (standard) or regulator (optional)
Above 10 psig (1.7 Bar) use regulator
Sensor overpressure damage limit: 10 psig (2.7 Bar)

Return Pressure Atmospheric Vent (optimal)
Limits +5 psig (1.36 Bar) to –5 psig (0.67 Bar)

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 300 Series stainless steel

Gas Connections 1/8" compression tube fittings
¼" VCR compatible (optional
except standard for FAH0050)

Construction

Enclosure NEMA 1 (standard)
Wall mounted NEMA 4 (optional)
Remote NEMA 4, NEMA 7 or sensor bracket (optional)

Weight 18 lbs. (7 kg.) (NEMA 1)
70 lbs. (31.7 kg.) (NEMA 4)

Dimensions: (NEMA 1) 12.13" W x 8.0" H x 10.13" D
(30.33 cm W x 20.0 cm H x 25.33 cm D)

Electrical

Power Input 115 VAC, 50/60 Hz or
230 VAC, 50/60 Hz
NiCad battery (optional)

Output Signals 0-1, 2, 5 , **OR** 10 VDC (standard),
Non-isolated 4-20 mADC (standard)
Isolated 4-20 mADC (optional)
User adjustable, lowest output range 0-0.5 ppm for FAH0050
User selectable Output Freeze during Calibration

Alarms, audible/visual Up to 4 Oxygen (optional)
(adjustable set-point, order relay contacts separately)
Electrolyte Condition (optional)
Low Flow (optional)
Temperature (optional)

Alarm Relays Up to 4 independently assignable
to Alarms, Cal Freeze, Sensor Off and Expanded
Range Scale
Alarm Relay Rating SPDT - 5 amps at 110 or 220 VAC
CE version: 3 Amps at 30 VDC
Failsafe Action

Display: 2.5" x 3.75" supertwist LCD graphics

Certifications: CE Conformance (optional)

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DF-350 Process Oxygen Analyzer
Optional Equipment
Base Models

PPM Range Analyzers

PPM Range	Standard Resolution Model Number	High Resolution Model Number
0 to 10,000	FAS100X	FAH100X
0 to 5,000	FAS5000	FAH5000
0 to 1,000	FAS1000	FAH1000
0 to 500	FAS0500	FAH0500
0 to 100	FAS0100	FAH0100
0 to 50	FAS0050	FAH0050

Percent Range Analyzers

% Range	Standard Resolution Model Number	High Resolution Model Number
0 to 25%	PAS0025	PAS0025
0 to 10%	PAS0010	PAS0010
0 to 5%	PAS0005	PAS0005

Options

Base Options

-S (added to model number) *Stab-Ei Sensor System*
Enables operation with trace levels of acid gas or any ionic contamination (within limits-consult factory for guidelines)

-V (added to model number) *220 VAC Line Voltage*
(110 VAC is standard)

PT-CE *CE Conformance*
Provides added EMI/RFI and conducted interference immunity

Remote *NOTE 1 & Choose only 1 Remote option*

-RB (added to model number) *Remote Sensor*
Remote sensor with flowmeter and mounting bracket

-R4 (added to model number) *NEMA4 Remote Sensor*
Includes remote sensor and flowmeter mounted in a NEMA4 enclosure

-R7 (added to model number) *NEMA 7 Remote Sensor*
Includes remote sensor mounted in a NEMA7 housing with an external flowmeter

Alarms *Audible/visual only*

PT-M002 *Two Oxygen Alarms*

PT-M004 *Four Oxygen Alarms*

PT-Q08 *Electrolyte Condition Alarm*

PT-FLALM *Low Flow Alarm*

PT-TALM *Temperature Alarm*

Relay Contacts[NOTE 2] (Independently assignable)

NT-RLY1 *One SPDT Relay Contact*

NT-RLY2 *Two SPDT Relay Contacts*

NT-RLY3 *Three SPDT Relay Contacts*

NT-RLY4 *Four SPDT Relay Contacts*

Cabinet

-N4 (added to model number) *NEMA 4 Wall Mount*[NOTE 1]

PT-PNL *Panel Mount* (13.94"Wx9.87"Hx10.1"D)

PT-RMNT *19"Rack Mount* (19"Wx10.5"Hx10.1"D)

NT-KYLK *Key Lock*

Outputs

PT-4-20I *Isolated 4-20 mADC*

PT-ERS-OUT *Expanded Range Scale*
(Requires optional relay for remote range identification)
User selectable secondary analog output range for re-scaling the output once the primary range is exceeded

PT-RS232 *RS232 Two-way Serial Communications*

PT-RS485 *RS485 Two-way serial communications*

Plumbing

PT-P014 *Pump with Down Stream Control Valve*
Diaphragm pump for negative pressures to 2.0 psi vacuum (0.88 Bar), or outlet vent back pressure to 3.0 psig (1.2 Bar)

PT-PR1-5 *Gauge Pressure Regulator*
Out-board 316 Stainless Steel Pressure Regulator, 3000 psig (208 Bar) inlet capacity; 0-10 psig (2.7 Bar) adjustable outlet pressure. Requires 5 psig (1.36 Bar) minimum inlet pressure

PT-PRA-0 *Absolute Pressure Regulator*
Vacuum to 500 psig (35.5 Bar) inlet capacity; 4 psia to 25 psia (-10 to +10 psig) (0.32 Bar to 2.7 Bar) adjustable outlet pressure

PT-PR1-5V *High Purity Pressure Regulator*
Same as PT-PR1-5 except VCR compatible fittings (use PT-PR1-5V-MNT for mounting to analyzer)

PT-PR1-5V-MNT *High Purity Regulator Mounting*
Welded tube assembly and bracket for mounting NT-PR1-5V regulator to analyzer cabinet

PT-PVSR *Welded Sample Inlet with VCR compatible fittings*
(standard on FAH0050)

PT-SSOL *Stainless Steel Outlet Line*[NOTE 3,4]

PT-F2S *Stainless Steel Filter* (Not available with PT-PVSR)

Miscellaneous

PT-Q01 *Quick Start*
Produces a quicker equilibrium at low ppm levels

PT-Y04 *Scale Factor*[NOTE 3]
Permits accurate read-out of oxygen in background gases having different diffusivities compared to nitrogen, such as, helium, hydrogen, and heavier hydrocarbons or mixtures.

PT-PASS *Password Protection*

PT-XTC Extension Cable per foot (remote sensors only)

PT-SSTAG Stainless Steel Tags

PT-T100 Sensor Enclosure Heater (for remote sensors only)

PT-NICAD Supplemental Battery Input Power
Permits portable operation independent of AC power

PT-B36 Extra NiCad battery pack

PT-ZPK Type Z Purge Protection System
Enables use in Class I/II, Div. 2 areas (Use with –N4 or –R4)

PT-F2R *Standard Filter Element* (particle size >1 micron)

PT-F2R-B *Fine Filter Element* (particle size <1 micron)

DF-E05 *Electrolyte*

DF-E06 *Electrolyte for FAH0050*

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