

## System Performance & Specifications

### Gas Sample Conditions

<b>Sample Pressure</b>	
Operating limits:	15 to 150 psig (2.03 to 11.3 BarA)
<b>Sample Return Pressure</b>	Atmospheric Vent (optimal)
Limits:	-2 to 2 psig (0.88 bar to 1.14 BarA)
For H <sub>2</sub> and He	Maximum limit: ± 1psig
For all other background gases	Maximum limit: ± 2 psig
<b>Flow Rate:</b>	
Operating:	2 to 5 slpm N <sub>2</sub> (Contact factory for other background gases)
Bypass:	0.25 to 2.5 slpm
<b>Sample Line Temperature</b>	
Heat Trace to 140°F (60°C)	Limits: 50° to 176°F (10° to 80°C) For best results, maintain sample line at 60°C
<b>Pneumatic Pressure</b>	60 to 100 psig (5.1 to 7.9 BarA)

### Gas Flow System

**Construction Materials** 300 Series stainless steel

#### Gas Connections

**System:** ¼ inch VCR compatible inlet fitting  
¼ inch compression bypass outlet fitting  
¼ inch compression outlet fitting to vacuum pump  
⅛ inch compression fitting for pneumatic gas inlet

**Pump:** ¼ inch compression inlet/outlet fittings on vacuum pump

#### Gas Delivery System Components

Pneumatically actuated springless diaphragm valves, orbital butt welded assembly with zero dead volume for sensor isolation and zero verification

High capacity purifier provides moisture and oxygen-free zero gas (Not compatible on oxygen samples)

Heated and temperature controlled sample delivery system

Integral pressure regulator with minimal wetted area

Bypass loop with flow control

### Maintenance & Logging

#### Data Logging & Graphing

*Analyzer can store years of continuous data, downloadable in monthly blocks*

#### Automatic Maintenance Log

*Self checking, maintains records satisfying many ISO 9000 requirements*

### Construction

<b>Enclosure:</b>	NEMA 1 in 19" Rack Mount
<b>Dimensions:</b>	19"(48.3cm) W x 10.5"(26.7cm) H x 22.5" (57.2cm) D
<b>Weight:</b>	72 lbs. (32.6 kg.)
<b>CE Conformance:</b>	Added EMI/RFI and Conducted interference immunity

### Hydrogen Safety

Optional safety system for use with hydrogen includes Sample Delivery Interlock and Case Purge Valves for instrument housing and enclosure and purge protection system for external vacuum pump.

Optional Hydrogen Safety System can be ordered with or without the enclosure and Purge Protection System for the vacuum pump.

Pump enclosure is 16.6" (42.4cm) W x 14.5" (36.8 cm) H x 11.6" (29.5cm) D

NOTE: Hydrogen Safety system requires the dedicated use of one of the oxygen relays

### Electrical

**Back Lighted Display** 7.4" VGA Monochrome (640x480)

#### Visual Alarm Status Indicators

4 oxygen levels, 4 moisture levels, temperature, electrolyte condition, moisture sensor diagnostic, loss of flow, zero verification or calibration-in-process, moisture analyzer off-line, oxygen analyzer analog output freeze control during calibration

#### Relays

*(Failsafe action upon loss of power to alarm condition)*

4 non-latching, independently assignable to oxygen alarms or oxygen calibration-in-process indicator and 4 non-latching independently assignable to moisture alarms. SPDT contacts rated for 1 amps at 30 VDC

#### Power Requirements

100-120 VAC @ 5A, 50/60 Hz (standard); 200-240 VAC @ 2.5A, 50/60 Hz (optional). Configurable at factory.

#### Output Signals

*Analog Outputs:*

Menu scaleable single output range:

Moisture: 0-2 ppb up to 0-20 ppm  
Oxygen: 0-2 ppb up to 20 ppm

Isolated 4-20 mADC for both moisture and oxygen

Choice of either 0-1, 0-2, 0-5, or 0-10 VDC for moisture and oxygen

Expanded Range Scales

*Two user selectable secondary analog output ranges for re-scaling the output once the primary range is exceeded*

*Digital Output:*

2-Way RS232 or RS485

# NanoTrace Dual

DF-760E

## Specifications & Configuration Guide

### Oxygen System

<b>Lowest Detection Level</b>	75 ppt
<b>Resolution</b>	
Analytical (Sensitivity-smallest detectable change)	50 ppt
Display	10 ppt
<b>Accuracy (greater of)</b>	±3% of reading or ±0.1 ppb (Constant Conditions)
<b>Speed of Response</b> (typically)	< 15 seconds
<i>Time to reach 90% of final reading in either direction</i>	
<b>Upset Recovery Time</b>	<5 minutes
<i>Time from high ppm upset to within 10 ppb of the previously stable reading</i>	
<b>Range</b>	0-20 ppm
<b>Ambient Operating Temperature</b>	50° to 105° F (10° to 40° C)
<b>Background Gas Compatibility</b>	
<i>All inert and passive gases including N<sub>2</sub>, He, H<sub>2</sub>, Ar, light hydrocarbons, halocarbons, etc.</i>	
<i>Includes Scale Factor as standard which permits accurate read-out of oxygen in background gases with different diffusivities to nitrogen.</i>	
<b>Extended Tracking Range</b> (standard)	
<i>When the analyzer reads over range, 20 ppm, it will continue to read, for tracking purposes, up to 100 ppm for a limited time</i>	

### Moisture System

<b>Lowest Detection Level</b>	200 ppt
<b>Resolution</b>	
Analytical (Sensitivity-smallest detectable change)	100 ppt
Display	10 ppt
<b>Accuracy (greater of)</b>	±3% of reading or ±0.2 ppb (Constant Conditions)
<b>Speed of Response</b> (typically)	10 minutes
<i>Time to reach 90% of an upward step challenge</i>	
<b>Upset Recovery Time</b>	< 5 minutes
<i>Time from high ppb upset to within 10 ppb of the previously stable reading</i>	
<b>Range (Output Scale)</b>	0-20 ppm
<b>Ambient Operating Temperature</b>	50° to 105° F (10° to 40° C)
<b>Background Gas Compatibility</b>	
<i>All inert and passive gases including N<sub>2</sub>, He, H<sub>2</sub>, Ar, and O<sub>2</sub></i>	
<i>Includes Scale Factor as standard which permits accurate read-out of moisture in background gases other than nitrogen.</i>	

## Ordering Codes

#### **Base Models**

**760E-0020** NanoTrace Dual Analyzer

**-V** (added to model number)  
230 VAC/50/60 Hz Input Power

#### **Outputs**

*(pick one Serial Communication)*

**760-RS232** Two-way Serial Communications

**760-RS485** Two-way Serial Communications

*(pick one VDC output)*

**760-OS-1** 0-1 VDC for both moisture and oxygen

**760-OS-2** 0-2 VDC for both moisture and oxygen

**760-OS-5** 0-5 VDC for both moisture and oxygen

**760-OS-10** 0-10 VDC for both moisture and oxygen

#### **Plumbing**

**760-HSS1** Hydrogen Safety System with Pump Purge  
Includes Sample Delivery Interlock and Case Purge valves for instrument housing, and enclosure with purge protection system for vacuum pump.

**760-HSS2** Hydrogen Safety System without Pump Purge  
Same as above, except vacuum pump is mounted on bracket only and does not include purge protection system.

#### **Cabinet**

**760-KL** Key Lock

#### **Miscellaneous**

**DF E-Lectrolyte Gold** Electrolyte

**DF-RSA** Replenishment Solution