

NanoTrace II Configuration Guide

DF-560E

Optional Equipment

Base Model

560E-0020 NanoTrace II Oxygen Analyzer

-S (added to model number) *Stab-El 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)

230 VAC/50-60 Hz Input Power

Plumbing

560-PR ^{NOTE 1} *High Purity Pressure Regulator*

3000 psig inlet capacity; 0-15 psig adjustable outlet pressure; requires 5 psig minimum inlet pressure (1/4 inch VCR compatible fittings)

560-PR-MNT *Regulator Mounting* ^{Note 5}

Welded tube assembly and bracket for mounting 560-PR1-5V regulator to analyzer cabinet

560-FCV-UHP *High Purity Flow Control Valve*

Ultra high purity bellows valve for upstream isolation shut-off and flow control (1/4" VCR compatible fittings)

560-ISO-DSV *Downstream Isolation Valve*

560-SSOL ^{NOTE 2} *Stainless Steel Outlet Line*

Calibration

560-CAL-A *Automated Calibration System*

Provides menu driven automatic zero and span valve switching, pneumatic diaphragm valves and zero purifier in a small on-board package, only 12.5" depth behind location of optional panel (requires 70-100 psig pneumatic supply.)

560-CAL-EXT *Auto Control of User-Cal Components*

Software with switched 6 VDC power for control of external, span/zero solenoids and valves.

560-CAL-M *Manual Calibration System*

Provides manual quarter-turn springless diaphragm valves and zero purifier in an orbital butt welded assembly that is compactly integrated on the rear panel of the analyzer to optimize portability.

-HCP ^{NOTE 3} *High Capacity Purifier*

(Substitute for Standard Purifier)

Recommended for applications where source gas purity can be > 10 ppb or sample sources are frequently switched, such as all portable applications. Provides 30 times higher capacity than the standard purifier.

Alarms (Audible/Visual)

560-FA *Low Flow Alarm*

Cabinet

560-N2CP ^{NOTE 2} *N₂ Case Purge w/ Power Interlock*
(Not compatible with 560-PNL; NT-SSOL required with this option)

560-RM *Rack Mount* (19"Wx10.5"Hx10.1"D)

560-PM *Panel Mount* (13.9"Wx9.9"Hx10.1"D)

560-KL *Key Lock*

Relay Contacts ^{NOTE 4} (Independently assignable)

560-RLY1 *One Relay Contact*

560-RLY2 *Two Relay Contacts*

560-RLY3 *Three Relay Contacts*

560-RLY4 *Four Relay Contacts*

Outputs

560-IAO *Isolated Voltage and Current Analog Output*

560-RS232 *Two-way Serial Communications*

560-RS485 *Two-way Serial Communications*

Miscellaneous

560-BAT *Supplemental Battery Input Power*

Permits portable operation independent of AC power

560-XTC-RS232 *Serial Port Adapter Cable*

Analyzer RS232 Port to 9-pin D-sub connector (10 ft.)

16315700 Battery Pack, NiCAD

16233870 Purifier, High Capacity, Black Label

16217280 Purifier, Zero Gas, 1/4" VCR Male Fittings

64005011 Filter Element, Coarse

64005012 Filter Element, Fine (>1 Micron)

E-Lectrolyte Gold Electrolyte

DF-RSA Replenishment Solution

NOTES:

1. Requires 560-PR-MNT or external support by user. External support not required when an auto or manual calibration system is ordered
2. Required when monitoring combustible samples such as H₂
3. Add "-HCP" to either the 560-CAL-A or 560-CAL-M option
4. Used with Optional or Standard Alarms or Status Indicators
5. Not required if 560-CAL-A or 560-CAL-M ordered

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Standard Features & Specifications

Effective: April 2010

Performance

Lowest Detection Level	75 ppt
Resolution	
Analytical (<i>Sensitivity-smallest detectable change</i>)	50 ppt
Display	10 ppt
Analog Output	1 ppt
Accuracy (greater of)	±3% of reading or ±0.1 ppb (Constant Conditions)
Response Time (typically) <i>Time to reach 90% of final reading</i>	<15 seconds
Upset Recovery Time <i>Time from high ppm upset to within 10 ppb of the previously stable reading</i>	<5 minutes
Range (Output Scale)	0-1 ppb (min) 0-20 ppm (max)
Ambient Operating Temperature	32° to 110° F (0° to 45° C)
Background Gas Compatibility <i>All inert and passive gases including N₂, He, H₂, 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>	

Gas Sample Conditions

Sample Pressure	
<i>Operating limits:</i>	15 to 25 psig (2.03 to 2.72 BarA) Regulated by a critical orifice For over 25 psig – order option NT-PR1-5V
<i>Sensor overpressure damage limit:</i>	5 psig (1.36 BarA)
Return Pressure	Atmospheric Vent (optimal)
<i>For H₂ and He</i>	Maximum limit: ± 1psig
<i>For N₂, Ar, and all other background gases</i>	Maximum limit: ± 2 psig
Flow Rate:	0.5 to 1.5 SCFH (0.24 to 0.7 slpm)
Temperature (Gas Sample)	32° to 122° F (0° to 50° C)
Moisture	No limits (avoid condensation)

Gas Flow System

Construction Materials	300 Series stainless steel
Gas Connections	¼ inch VCR compatible inlet fitting Orbital butt welded sensor inlet assembly 1/8 inch compression outlet fitting
Calibration System Components	
	Pneumatically or manually actuated springless diaphragm valves, orbital butt welded assembly
	Oxygen scrubber provides <0.1 ppb oxygen-free zero gas
	¼ inch VCR compatible span inlet fitting
	1/8 inch compression fittings for pneumatic actuator gas

Maintenance & Logging

Data Logging & Graphing

Automated Scheduled Calibration

(Requires selecting either the 560-CAL-A or the 560-CAL-EXT option.)

Automated Scheduled Calibration Checks

(Requires selecting either the 560-CAL-A or the 560-CAL-EXT option.)

Automatic Maintenance Log

Extended Tracking Range (standard)

When the analyzer reads over range, 20 ppm, it will continue to read, for tracking purposes, up to 100 ppm for a limited time

Construction

Enclosure:

NEMA 1 standard

CE Conformance

Provides added EMI/RFI and conducted interference immunity

Weight:

18 lbs. (8 kg.)
22 lbs. (10 kg.)
with calibration system

Electrical

Back Lighted Display 2.5" x 3.75" SuperTwist LCD graphics

Audible/Visual Alarm Status Indicators

(Output relays available – See Options – Relay Contacts)

4 oxygen levels, temperature and electrolyte condition (standard)
Loss of flow alarm indicator (optional)

Relays (Optional)

(Failsafe action upon loss of power to alarm condition)

Up to 4 non-latching, independently assignable to alarms or calibration-in-process indicator. SPDT contacts rated for 5 amps at 30 VDC.

Power Requirements

100-120 VAC, 50/60 Hz (standard); 200-240 VAC, 50/60 Hz (optional); NiCAD battery (optional)

Output Signals

Analog Outputs:

Menu scaleable single output range of 0-1 ppb up to 0-20 ppm

Over range feature allows short term range 0-100 ppm

Non- Isolated 4-20 mADC, 0-1, 0-2, 0-5, or 0-10 VDC (standard)

Isolated 4-20 mADC, 0-1, 0-2, 0-5, or 0-10 VDC (optional)

Expanded Range Scales (standard)

(Requires optional Alarm Relay for remote identification of range)

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 (optional)

Calibration Control

Calibration-In-Process indication (requires an optional relay contact)

Analog output freeze control during calibration