

NanoTrace Configuration Guide

DF-550E

Optional Equipment

Base Model

550E-0010 NanoTrace 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

550-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)

550-PR-MNT Regulator Mounting^{Note 5}

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

550-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)

550-ISO-DSV Downstream Isolation Valve

550-SSOL^{NOTE 2} Stainless Steel Outlet Line

Calibration

550-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.)

550-CAL-EXT Auto Control of User-Cal Components

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

550-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)

550-FA Low Flow Alarm

Cabinet

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

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

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

550-KL Key Lock

Relay Contacts^{NOTE 4} (Independently assignable)

550-RLY1 One Relay Contact

550-RLY2 Two Relay Contacts

550-RLY3 Three Relay Contacts

550-RLY4 Four Relay Contacts

Outputs

550-IAO Isolated Voltage and Current Analog Output

550-RS232 Two-way Serial Communications

550-RS485 Two-way Serial Communications

Miscellaneous

550-BAT Supplemental Battery Input Power

Permits portable operation independent of AC power

550-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)

DF E-Lectrolyte Gold Electrolyte

DF-RSA Replenishment Solution

NOTES:

1. Requires 550-PR-MNT or external support by user. External support not required when an auto or manual calibration system is ordered
2. Recommended when monitoring combustible samples such as H₂
3. Add "-HCP" to either the 550-CAL-A or 550-CAL-M option
4. Used with Optional or Standard Alarms or Status Indicators
5. Not required if 550-CAL-A or 550-CAL-M ordered

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Standard Features & Specifications

Effective: April 2010

Performance

Lowest Detection Level	200 ppt
Resolution	
Analytical (<i>Sensitivity-smallest detectable change</i>)	100 ppt
Display	100 ppt
Analog Output	10 ppt
Accuracy (greater of)	±3% of reading or ±0.1 ppb (Constant Conditions)
Response Time (typically)	<15 seconds <i>Time to reach 90% of final reading</i>
Upset Recovery Time	<5 minutes <i>Time from high ppm upset to within 10 ppb of the previously stable reading</i>
Range (Output Scale)	0-20 ppb (min) 0-10 ppm (max)
Ambient Operating Temperature	32° to 110° F (0° to 45° C)
Background Gas Compatibility	All inert and passive gases including N ₂ , He, H ₂ , Ar, light hydrocarbons, halocarbons, etc. Includes Scale Factor as standard which permits accurate read-out of oxygen in background gases with different diffusivities to nitrogen.

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

Construction

Enclosure:	NEMA 1 standard
CE Conformance	<i>Provides added EMI/RFI and conducted interference immunity</i>
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)	(<i>Failsafe action upon loss of power to alarm condition</i>) 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	<i>Analog Outputs:</i> Menu scaleable single output range of 0-20 ppb up to 0-10 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) <i>Two user selectable secondary analog output ranges for re-scaling the output once the primary range is exceeded</i>
<i>Digital Output:</i>	2-Way RS232 or RS485 (optional)
Calibration Control	Calibration-In-Process indication (requires an optional relay contact) Analog output freeze control during calibration