

# FurnaceDoctor®-Pro

## Portable Infrared Gas Analyzer for Heat Treat Atmospheres

### Features

- Accurate, affordable infrared measurement of CO, CO<sub>2</sub>, and CH<sub>4</sub>
- Computation of % Carbon, Dew-point and expected O<sub>2</sub> probe millivolts
- Easy to read 7 in. LCD display with touchscreen
- Built-in Ethernet
- USB 2 high speed port for data retrieval
- CQI-9 compliant encrypted data logging and on-screen charts
- Long life, quick-change lithium ion battery with charge indicator (spare batteries available)
- High-volume long-lasting filter and a secondary, self-contained, long-lasting sub-micronic filter
- Handy Process Calculator

### Benefits

- Accurate calculation of atmosphere carbon potential
- Verification of oxygen probe accuracy
- Easy identification of furnace atmosphere problems and furnace condition
- Evaluation of Endo and Exo generator performance, and catalyst condition
- Optimize nitrogen methanol system performance
- Easy retrieval of data logged gas analysis

### Extended measurement ranges

For both endothermic & exothermic furnace atmospheres. Can verify any process that uses "lean" or "rich" exothermic atmospheres such as bright annealing, brazing, or lamination annealing.



FurnaceDoctor®-Pro		www.group-upc.com	
CO [%]	19.6	CP [%]	0.14
CO2 [%]	1.000	C [%]	0.14
CH4 [%]	10.13	C+CH4 [%]	0.55
H2 [%]	40	O2 [mV]	1,035
°F	1,699	DPT [°F]	75
Alloy Factor [%]	100	<input checked="" type="checkbox"/> Logging: ON <input type="button" value="Change"/>	
CH4 Factor [%]	65.0	TEST4_LOG.LOG	
Furnace Mode	Change	<input type="button" value="Main Menu"/>	

### Additional Features

- Enter furnace temperature into the analyzer to compute:
  - Equivalent % Carbon potential
  - Expected probe millivolts for that % Carbon at that temperature
  - Dew point
  - Process Calculator for computing % Carbon or Dewpoint from known or measured furnace atmosphere values
- VNC server for remote and real-time access to analyzer
- Optional wireless network connection to plant network for data logging

### Specifications & Operating Conditions

CHARACTERISTICS	CO <sub>2</sub>	CO	CH <sub>4</sub>
<b>Ranges</b>			
- Endothermic	0-2%	0-30%	0-10%
- Exothermic	0-20%	0-20%	0-10%
<b>Resolution</b>	20 ppm	0.02%	0.02%
<b>Accuracy</b>	1% of range	2% of range	2% of range
<b>Operating Temperature</b>	40-120 °F (4-49 °C)		
<b>Relative Humidity</b>	5% - 90% non-condensing		
<b>Stability</b>	<±2% over 12 months		
<b>Repeatability</b>	Zero ±0.3%, Span ±1.5%		
<b>Power Requirements</b>	Analyzer: 15VDC internal battery Charger: 10-220 VAC, 50-60 Hz		

### Calibration

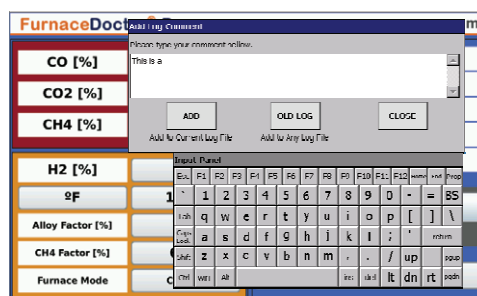
- UPC provides calibration to primary standard-grade gases in our facility. A calibration certificate is provided to satisfy your in-house documentation requirements.
- We also supply traceable certified grade gas cylinders and associated equipment for calibration in your facility.

CO [%]	20	O2 [mV]	1,143
CO2 [%]	0.2	DPT [°F]	25
CH4 [%]	1.1	CP atm [%]	1.21
H2 [%]	40.0	C [%]	1.21
°F	1,550	C+CH4 [%]	1.25
Alloy Factor [%]	100	Sat.C [%]	1.000
CH4 Factor [%]	0	O2 [%]	4.615E-20

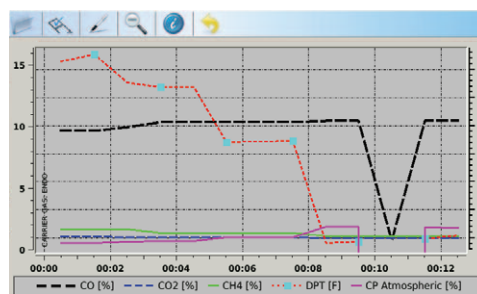
Calculation Method Set to:  
 Use Gas Input     Use mV Input     Use DPT Input

**CALCULATE**    **Main Menu**

### Handy Process Calculator



### Operator Log Notes Screen



### Example of a Log Screen

### Suitable For

- Annealing
- Austempering
- Carbon Correction
- Carbonitriding
- Carburizing
- Martempering
- Neutral Hardening
- Normalizing
- Precipitation Hardening
- Stress-Relieving

*If your process is not listed above, please call us for assistance.*