

# DENSITRAK®

## LIQUID DENSITY METER



Analytical Flow Technologies' products have been designed by an engineering team with extensive experience in the manufacture, service, calibration, and application of vibrating tube density meters.

The DENSITRAK® D625 liquid density meter was originally designed by Edward E. Francisco, Jr (formerly of Calibron Systems, Inc). The founder of Analytical Flow Technologies, Paul Heinritz, has extensive experience with DENSITRAK® density meters while at Calibron Systems, Inc., and Honeywell Enraf Americas.

The meter production was briefly moved to Pune, India in 2008; however customer needs required the meter to be manufactured, serviced and supported here in the United States. This requirement enabled the development of Analytical Flow Technologies which has an outstanding reputation for quality and excellent customer service and support.

The Analytical Flow Technologies **AMERICAN-MADE** DENSITRAK® D625 Density Meter has been widely used in Industry for over 10 years.

Visit our website at [www.densitrak.com](http://www.densitrak.com) & complete the Customer Application Questionnaire for a Personalized Sales Quote



## DENSITRAK® D625 Liquid Density Meter

### FEATURES

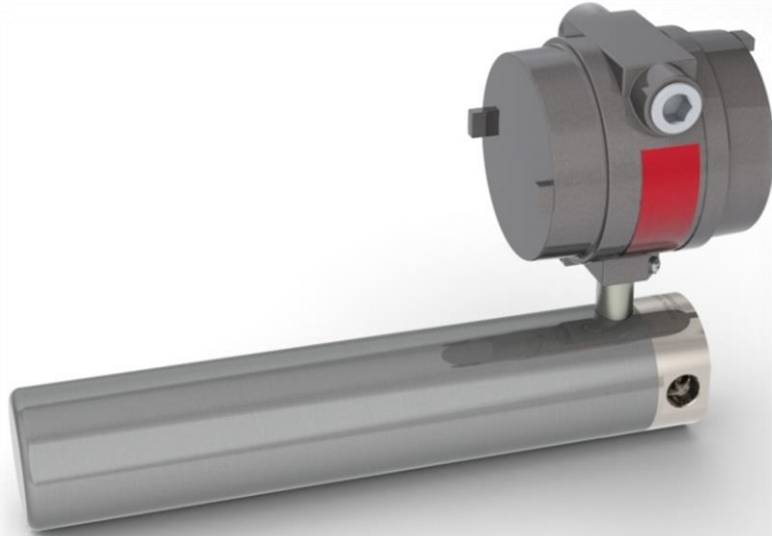
- COMPACT
- LIGHTWEIGHT (<15LB)
- HIGH RESOLUTION
- MATERIAL IS SUITABLE FOR MOST CORROSIVE APPLICATIONS
- BUILT IN RTD & 4-20mA TEMPERATURE TRANSMITTER
- HIGH BENEFIT-TO-COST RATIO
- FREQUENCY OUTPUT FOR DENSITY CALCULATION WITH CUSTOMER-OWNED FLOW COMPUTER
- AVAILABLE WITH A DENSITY PROCESSOR AND A LINEARIZED 4-20mA OUTPUT
- ONE YEAR WARRANTY PARTS AND LABOR
- MADE IN THE U.S.A.

### APPLICATIONS

- INTERFACE DETECTION
- LIVE DENSITY MONITORING
- PRODUCT BLENDING
- PROCESS QUALITY CONTROL
- ...AND MANY MORE

### INDUSTRIES

- PETROLEUM PIPELINE & REFINERY
- CHEMICAL & PETRO-CHEMICAL
- PHARMACEUTICAL
- WATER TREATMENT
- SEMICONDUCTOR PRODUCTION
- ...AND MANY MORE



## Signal Processing Unit for Density (SPUD) SPUD 800

The SPUD Module 800 is a “small footprint” Density Processor that is available on the DENSITRAK® D625 Density Meter. The SPUD provides a Linear analog 4 – 20 mA Density Output signal over a specified density range. The SPUD is programmed at the factory with unique Calibration Coefficients which the processor incorporates when solving the density algorithms based on fluid composition, temperature and pressure.

### DENSI-Trax Software

PROPRIETARY WINDOWS®-BASED SOFTWARE PACKAGE FOR MONITORING REAL-TIME DENSITY, PRESSURE, TEMPERATURE, and other variables. Allows the end-user to modify / change the INPUT/OUTPUT settings.

Also allows the end-user to FIELD-CALIBRATE the meter by using a DENSITY CORRECTION FACTOR.

### FEATURES

- Mounted integral to the Densitrac electronics enclosure
- Adjustable analog output
- Also provides a Frequency Output signal for Density

### DATA I/O Inputs

- Density Meter frequency of oscillation
- 4-20mA fluid temperature input
- 4-20mA Pressure Transmitter input
- RS232 Serial Port (I/O)

### OUTPUTS

- 4-20mA Analog Density Output (Scalable)
- 4-20mA Temperature Output
- Isolated Frequency Output



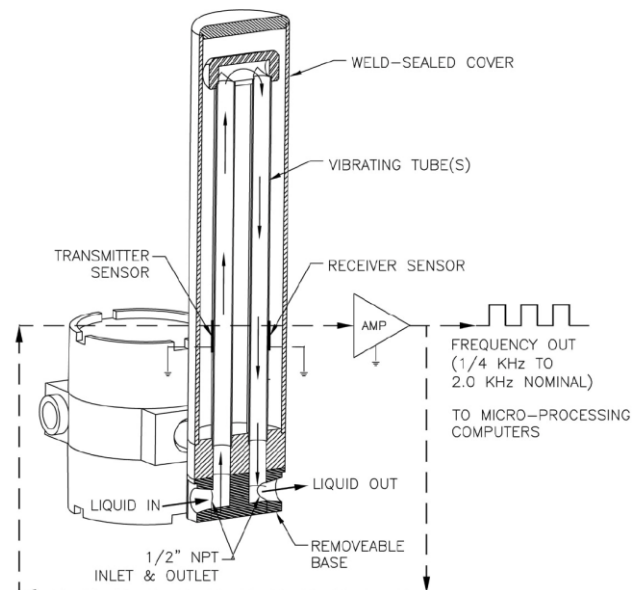
## DENSITRAK® D625 Product Specifications

<b>Calibrated Density Ranges:</b> Standard: 0.70 – 1.40 gm/cm <sup>3</sup> Optional: 0.40 – 1.00 gm/cm <sup>3</sup> or Customer Specified Density Range	<b>Operating Temperature Range:</b> Standard: 50°F to 140°F (10°C - 60°C) Optional: 32°F to 240°F (0°C - 110°C)
<b>MAXIMUM Density Range:</b> 0.70 gm/cm <sup>3</sup>	<b>Power Requirements:</b> VOLTAGE: 16 – 30 V <sub>DC</sub> CURRENT: 250 mA Nominal
<b>Signal Output:</b> Nominal 0.800 kHz to 1.500 kHz Amplitude of Output is same as the INPUT Voltage	<b>Temperature Output Signal:</b> CURRENT: Scalable Analog 4 – 20 mA
<b>Density Resolution<sup>A</sup>:</b> 0.00001 gm/cm <sup>3</sup>	<b>Operating Pressure:</b> Standard: 1500 PSI Optional: up to 2160 PSI <sub>g</sub> (ANSI 900) MAXIMUM Line Pressure: 2500 PSI <sub>g</sub> at 100°F HYDROSTATIC TEST: 1.5 X LINE PRESSURE
<b>Density Meter Accuracy<sup>A</sup>:</b> 0.0001 gm/cm <sup>3</sup>	<b>Materials of Construction:</b> Wetted Parts: SS 316 body, C-276 Alloy Tubes, & Viton O-Rings Cover/Enclosure: SS304, Aluminum
<b>Density Meter Repeatability<sup>A</sup>:</b> Better than 0.01%	<b>Electrical Classification:</b> Designed to meet NEC Class 1, Div. 1, Groups C & D
<sup>A</sup> Based upon the density meter's raw frequency output. Field accuracy of the density reading ultimately depends upon the collective effects (RMS) of all measurement standards of density, temperature, pressure input during calibration, operational data collection and processing.	<b>Instrument Housing (Enclosure):</b> Approvals: CSA, FM, UL, ATEX

## Principle of Operation

The DENSITRAK® Model D625 liquid density meter utilizes the oscillating U-tube as a technique to establish the density of liquids and gases based on an electronic measurement of the frequency of oscillation, from which the density value is calculated. A change in the vibrating mass, (as a result of change in the fluid density) shifts the resonant frequency. The meter produces a square wave frequency output signal that can be processed by a microprocessor based signal converter (SPUD) or commercially available flow computer (Omni Flow Computer for example). The microprocessor utilizes built in algorithms to compute density based on fluid composition, temperature, and pressure. Each densitometer has a unique set of Calibration Coefficients which are used by the micro-processor in calculating the live fluid density. These coefficients are determined by careful calibration in the Analytical Flow Technologies laboratory for each meter individually.

We offer a variety of meter models and our engineers review each Sales Application to determine the D625 model that best suits your specific application.



DENSITRAK® D625 Model Configuration Table			
D625	<b>Vibrating U-Tube, 0.625 inch Resonant Tube Diameter</b>		
<b>Wetted Parts of the Density Meter</b>			
A	316/316L & Hastelloy C276 (STANDARD)		
<b>Process Connections</b>			
0	Standard ½ Inch FNPT 90° Base (STANDARD)		
1	½ Inch 150# ANSI RF		
2	½ Inch 150# ANSI FF		
3	½ Inch 300#/600# ANSI RF		
<b>00</b>			
<b>Integrated Electronics Package Alternatives</b>			
00	Freq. Out for Density, ATEX Certified Enclosure (NO Processor)		
01	Microprocessor in NEMA 4 Enclosure		
02	Microprocessor, No LCD, in ATEX Certified Enclosure		
03	Microprocessor with LCD Display, in ATEX Certified Enclosure		
04	Microprocessor with LCD Display in NEMA 4 Enclosure		
D625	A		

***AFT Engineers will work with you to determine the appropriate Densitrak model for your application.***

***Simply complete the CUSTOMER APPLICATION QUESTIONNAIRE on our website.***



## DENSITRAK® Density Meter Accessories

We offer a variety of accessories designed to work exclusively with the DENSITRAK® D625 density.

Below are a few of the more common accessories used in most density meter applications.

ITEM	ITEM NO.	Description
	<b>GBS-XX</b>	<p><b>GBS INSERTION SCOOP</b></p> <p>The GBS Insertion Scoop Bypass assembly installs on an O-Let on the main pipeline. The insertion scoop diverts flow from the main pipeline up through the densitometer bypass loop and back into the main pipeline.</p> <p>Contact AFT engineers with any questions regarding the use of the scooped insertion kit.</p>
	<b>GFL-XX</b>	<p><b>GFL Insertion Scoop</b></p> <p>The GFL Insertion Scoop Bypass assembly installs on an ANSI FLANGE on the main pipeline. The insertion scoop diverts flow from the main pipeline up through the densitometer bypass loop and back into the main pipeline</p>
	<b>GPS-XX</b>	<p><b>GPS Wafer Assembly</b></p> <p>The GPS Wafer Densitometer Bypass assembly installs between two pipe flanges. The insertion scoop diverts flow from the main pipeline through the densitometer bypass loop and back into the main pipeline</p>
	<b>101189</b>	<p><b>Insulation Jacket, D625, Removable</b></p> <p>Many applications require that the Densitrak D625 be mounted outdoors and exposed to harsh environmental conditions. Drastic changes in the climate, such as ice formation, direct sunlight, etc., can adversely affect meter performance. Analytical Flow Technologies recommends that ANY densitometer mounted outdoors be fitted with an environmental insulation jacket.</p>

## DENSITRAK® Density Meter Services

Analytical Flow Technologies (AFT) is the ONLY authorized service and repair center for the Calibron and Honeywell DENSITRAK® Density Meters (D625, 1AA0, and SVT).

To Request a Repair or Re-Calibration RMA simply complete the "AFT Request for Repair" form on our website ([www.densittrak.com](http://www.densittrak.com)) and submit via email or fax.

AFT offers a wide array of technical services and solutions such as:

- ✓ DENSITRAK® Meter repair – Mechanical and Electrical
- ✓ DENSITRAK® Meter Re-Calibration – Standard, Low and High Density Calibration
- ✓ DENSITRAK® Meter Verification Testing
- ✓ Electronics & Microprocessor UPGRADES – Analytical Flow Technologies has invested thousands of dollars on NEW State of the Art amplifier and microprocessor electronics, and Windows® based configuration and monitoring software.
- ✓ We are also available for any questions you may have concerning operation of your meter, density meter process application, meter installation, and material compatibility with chemicals and fluids



Analytical Flow Technologies Engineers are always available to answer any of your questions – FEEL FREE TO CONTACT US.

## CONTACT INFORMATION

**Analytical Flow Technologies, LLC**  
**16524 E Laser Dr.**  
**Suite 10**  
**Fountain Hills, AZ 85268 USA**

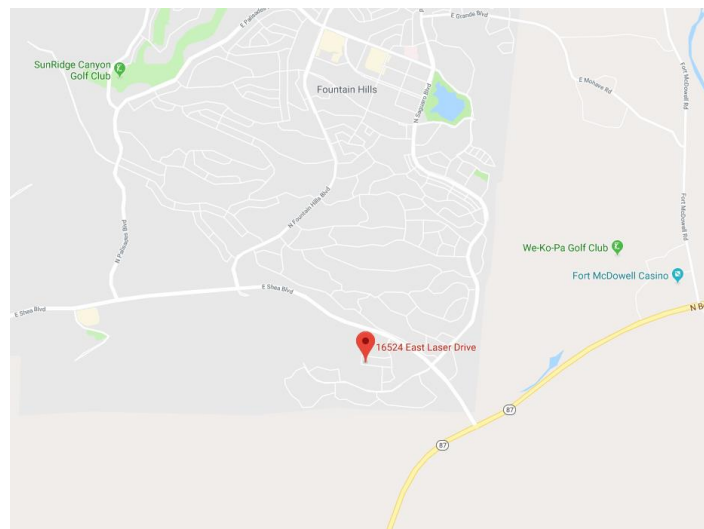
**Ph: (480) 443-0168**

**FAX: (888) 774-8321**

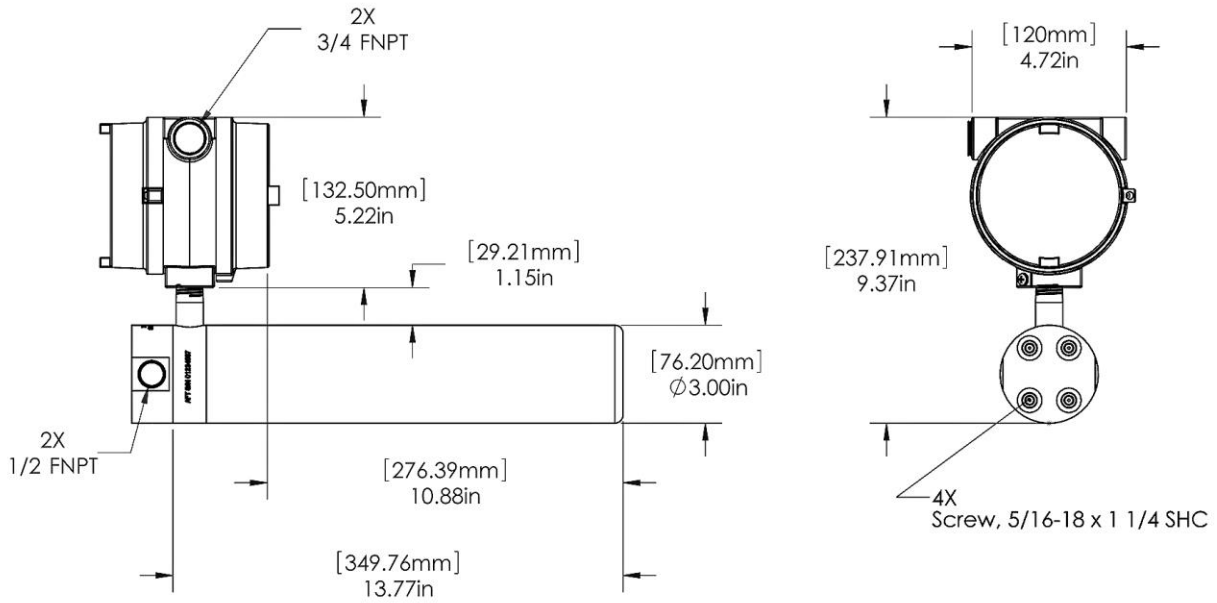
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**Website: [www.densittrak.com](http://www.densittrak.com)**



## DENSITRAK® Dimensions and Physical Characteristics



Weight is Approximately  
15 pounds (7 kg)



