

SONARtrac™ Total Air Monitor

Model TAM-100

The SONARtrac Total Air Monitor is a breakthrough in process monitoring technology. This system provides a highly accurate, real-time measurement of the total gas (entrained and dissolved) present in any liquid or continuous process fluid. Using no moving parts, the SONARtrac Total Air Monitor simulates the process by which air is liberated from a pulp suspension at a paper machine "wire". By continuously diverting a small amount of process fluid through a sample tap to a vertical chamber, the process fluid is expanded to atmospheric pressure. Exposing the process fluid to ambient pressure allows dissolved gases to come out of solution. Thus, by measuring the precise amount of free gas within the vertical chamber, the SONARtrac Total Air Monitor measures the amount of total air present in the process fluid in the approach lines to the headbox. The SONARtrac Total Air Monitor joins the SONARtrac Gas Volume Fraction (GVF-100) meter as part of a family of monitoring solutions for entrained and dissolved gases, important to a wide range of industrial processes.

The SONARtrac Total Air Monitor does not utilize ultrasonics; it utilizes patented array processing techniques to listen to, and interpret, acoustic fields generated by the machinery, piping and flow present in virtually all industrial processes. This passive listening approach results in an in-situ measurement of the amount of entrained air/gas present at ambient pressure in the process flow with a high degree of accuracy and repeatability.

Sonar Technology

CiDRA's SONARtrac technology represents an innovative new class of industrial measurement instrumentation. This "sonar" technology utilizes array-processing techniques related to those used in the field of sonar processing. CiDRA's proprietary "sonar" technology was initially developed for flow and compositional measurement in one of the world's most demanding environments: down hole, offshore oil and gas production.

CiDRA has taken the proven reliability of its SONARtrac technology to provide new measurements and insight into the monitoring and optimization of industrial processes.

The SONARtrac Total Air Monitor utilizes proprietary technology developed by CiDRA Corporation. The amount of entrained gas at ambient pressure is monitored by using CiDRA's array processing techniques to measure the sound speed, or speed at which sound propagates, through the process medium. The total air percentage is then calculated directly from the measured sound speed.

The advantages and features of CiDRA's SONARtrac Total Air Monitoring System enable users to realize the following measurable benefits:

- Low installation and life cycle costs
- Increased process efficiency and uptime
- Lower operating costs
- Increased product quality

Features:

- Entirely non-intrusive design enables:
 - Installation without shutting down the process
 - No wetted parts to corrode or fail
 - No moving parts
- Real time measurement of total entrained gas at ambient pressure resulting in ability to monitor and/or assess effect of defoamer dosing and process changes and on process efficiency and quality.
- Optimize deaerating chemical additive usage.
- On-line monitoring of the effectiveness of mechanical deaeration systems.
- Detect changes in process operation due to gas leaks caused by pump, pump/valve packing or flange/pipe problems.
- Accurate and reliable operation over a wide range of process flows.
- Simple, quick installation.



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SONARtrac™ Total Air Monitor System Specifications

Parameter	Specifications	Comments
Supply Tap	Sample tap size 1" or greater	Minimum of 20 GPM
Total air/gas range	0 to 20 %	By volume
Total air/gas accuracy	±5% of reading, 0.01% to 20%	
Total air/gas repeatability	±1% of reading, 0.01% to 20%	
Transmitter with integrated flow processor	Programmable by keypad or PC interface Self-diagnostics capability	
Operating Temperature Range:		
Transmitter	-4°F to +140°F (-20°C to +60°C)	
Sensor head process temp.	-40°F to +185°F (-40°C to +85°C)	
Sensor head ambient temp.	-40°F to +140°F (-40°C to +60°C)	
Storage Temperature Range:		
Transmitter	-22°F to +176°F (-30°C to +80°C)	
Sensor head	-40°F to +185°F (-40°C to +85°C)	
Cable between transmitter and sensor head	PLTC or armored cable with one end connectorized	Cable lengths up to 300 ft (90m)
Analog Input	Two (2) 4-20 mA	Enables internal logging of optional process parameters
Analog output	Two (2) isolated 4-20 mA current outputs	One (1) with HART protocol
Digital outputs	RS232 or RS485	
Transmitter local display	LCD with backlight	Provides entrained air/gas, system status, system diagnostics
Data logging capability	Yes	
Transmitter enclosure	NEMA 4X	
Power requirements	AC version: 100 to 240 VAC, 50/60 Hz, 25 watts DC version: 18 to 36 VDC, 25 watts	

Contact CiDRA

To speak with a CiDRA applications engineer about the SONARtrac Total Air Monitor, or for information on this or other CiDRA industrial process measurement solutions, call (877) cidra77 or visit our web site at www.cidra.com. SONARtrac is a trademark of CiDRA Corporation.

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