PFAS and MULTI-CHEMICAL REAL TIME DETECTION FAST GAS CHROMATOGRAPH

Model Series ~ PFAS-TA

Models ~ PFAS-TA-L and PFAS-TA-F

FEATURES:

PFAS-TA SERIES

- DETECTS PFAS AND OTHER HYDROCARBONS – C4 TO C25
- WATER OR AIR
- **PFAS-TA-L identifies vapors as low as 1 PPT (parts-per-trillion) in just 5-60 seconds.**
- BENCHTOP OR PORTABLE
- QUANTITATIVE
- QUALITATIVE ANALYSIS
- EXCEPTIONAL SENSITIVITY
- ANALYZE VAPORS IN 5 - 60 SECONDS
- INTERNAL SAMPLE PUMP
- DC POWER WITH CHARGER

PFAS-TA-L (Laboratory Model)

- DATA OUTPUT - BLUETOOTH OR RS-232 USER SETTABLE
- DISPLAY ON USER'S LAPTOP; **OPTIONAL**: LAPTOP

PFAS-TA-F (Field Use Model)

- SELF CONTAINED
  - INTEGRATED COMPUTER AND DISPLAY
- DATA STORAGE & ARCHIVE
- COMPUTER INTERFACE USB PORT

PFAS-TA-L
(Laboratory Use)

PFAS-TA-F
(Field Use)

APPLICATION:

The PFAS-TA Series Vapor detectors and analyzer is a field ready fully integrated system for air or water. With an internal sampler pump and integrated compute. Model series **PFAS-TA identifies vapors as low as 1 PPT (parts-per-trillion) in just 5-60 seconds.**

EPA's proposed regulation limit for PFOA and PFOS is 4 ppt. The PFAS-TA provides immediate measurement of PFOA and PFOS. Typical laboratory analysis is expensive and may take a week or more for results.

Rapid, on-the-spot PFAS contamination testing below the EPA's limit and can be configured for either water or air samples.

Multi-Chemical analysis provides immense application diversity for the PFAS-TA model series of detectors for many industries. (See APPLICATION DETAILED PAGE)

A proprietary Surface Acoustic Wave (SAW) detector results in a system with previously unattainable sensitivity in a portable low-cost package.

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INDUSTRY APPLICATIONS:

PUBLIC HEALTH & ENVIRONMENT	HOMELAND SECURITY
Drinking Water & Waste Water Quality	Explosives in Soil & Water
Air Quality	Port & Cargo Security
Plastics	Airport Security
Bacteria & Mold	Building Security
Beverages	
Packaged Food	
Animals	
ENERGY	**AGRICULTURE**
BEAUTY	**MEDICAL**
ZOOLOGY	

DESCRIPTION:

- Carrier Gas: Helium, Typical 300 tests per day per charge
- Analysis Time: 5 – 60 Seconds
- Display: Windows any version

Utilizing a trap and helium carrier gas, the PFAS-TA models inject samples into a heated column and separation takes place. Materials sequentially exit the column and are deposited on the SAW detector. The deposit results in a change in the oscillating frequency of the resonator directly proportional to the mass.

UNIQUE DETECTION:

- Recognizes full chemical signature
- Provides a complete chemical profile
- Has an expandable library of 700+ chemical signatures
- Ultra-high-speed chromatography
- Same time pattern recognition and trace detection
- Adapts and learns to recognize threat signatures

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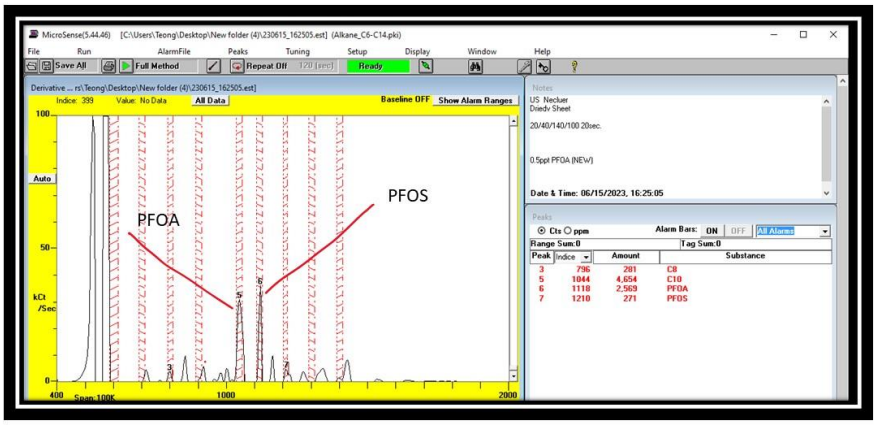
THE PFAS AND MULTI-CHEMICAL DETECTION SYSTEM EXPLAINED

Sheet of AEM membrane
(20.40.140.100 Pump 10sec) Weight 364mg slice



Weight is AEM Membrane: 364mg slice

Heated to 32 degrees C

The graphic shows that there is PFOA and PFOS present

HOW IT WORKS

- A Q surface acoustic wave (SAW) interferometer is the key component
- Individual analyte peak half-width is measured in seconds
- Every picogram of material is collected on the surface of the temperature-controlled quartz crystal.
- An image of the chemical pattern is obtained from the frequency of the SAW resonator.
- The SAW interferometer produces a resonance frequency proportional to the amount of column effluent deposited on the quartz surface.
- A complex ambient environment is viewed and recognized via a its image

This unique method and function is a rapid and accurate process for PFAS and other chemical detection. The benchtop model **PFAS-L** and the field model **PFAS-F** provide researchers with a process that stands out from other market methods.

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CBRN Real - Time Air & Water Specialists

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Model Series ~ PFAS-TA

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SPECIFICATIONS:

DETECTOR:	Surface Acoustic Wave (SAW) Quartz microbalance
Dynamic Range:	2×10^5
Temperature:	0^o C to 150^o C, programmable
Detects:	PFAS and C4 to C25
Sensitivity:	PFAS-L - 1 part per trillion in 5-60 seconds. For many compounds in 10 seconds Sensitivity will vary by compound sampling time, matrix, interferences & detector temperature ranges.
Accuracy:	<2% standard deviation
Dynamic Range:	$10^6 \pm 10\%$
Recycle Time:	30 sec minimum

SAMPLING:

Sample Pump:	Internal
Sample Introduction:	~.5 ml/sec
Sample Time:	1-300 seconds, User Settable
Carrier Gas:	Helium, (Min 99.999% purity, #6) Replaceable Cylinder 95cc at 17.6MPz (2560 psi) Typical use is 200 - 300 tests per day on one helium charge
Compound Identification:	Automatic with user calibration

COLUMN:

Limits:	35^oC to 225^oC -depending on column
Ramping:	1 – 18^o C/sec

ENVIRONMENT:

Operating Temperature:	32^oF to 105^o (0^oC to 40^oC)
Relative Humidity:	0 – 95% non-condensing

POWER:	Battery Pack: 28V DC, 16 AHr Lithium Ion (5hr typical)
Charger Power:	100 – 127 VAC at 3 amps – 50/60 Hz; 200 - 240 VAC at 1.5 amps – 50/50 Hz

INLET CONNECTION / TEMPERATURE:

Inlet Port:	Stainless steel LUER
Temperature:	50^oC to 200^oC

SYSTEM CONTROLLER SOFTWARE:

Intel Pentium 100 MHz or better processor, MIN: 16MB RAM, 1GB Hard Driver with Windows (any version)

OPTIONAL: Laptop computer

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WEIGHT & DIMENSIONS:

HEAD:

Weight:	5.7 lbs	(2.6 kg)
Length:	12.5 in	(31.8 cm)
Width:	4.3 in	(10.9 cm)
Height:	6.8 in	(17.3 cm)

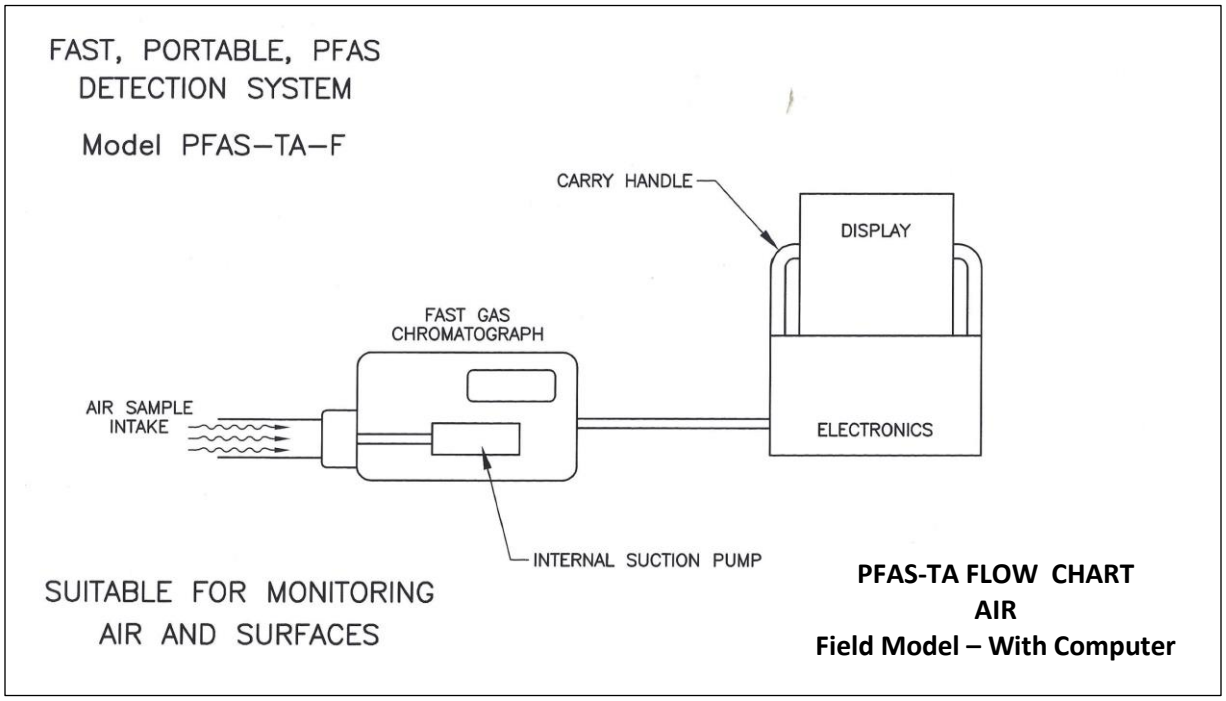
SUPPORT:

Weight:	18.7 lbs	(8.5 kg)
Length:	12.5 in	(31.8 cm)
Width:	9.7 in	(26.4 cm)
Height:	5.8 in	(14.5 cm)

CHARGER:

Weight:	7.7 lbs	(3.5 kg)
Length:	13.5 in	(34.25 cm)
Width:	9.7 in	(14 cm)
Height:	3.7 in	(9.5 cm)

PFAS AIR FLOW CHART



PFAS-TA FLOW CHART
AIR
Field Model – With Computer

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FAST GAS CHROMATOGRAPH

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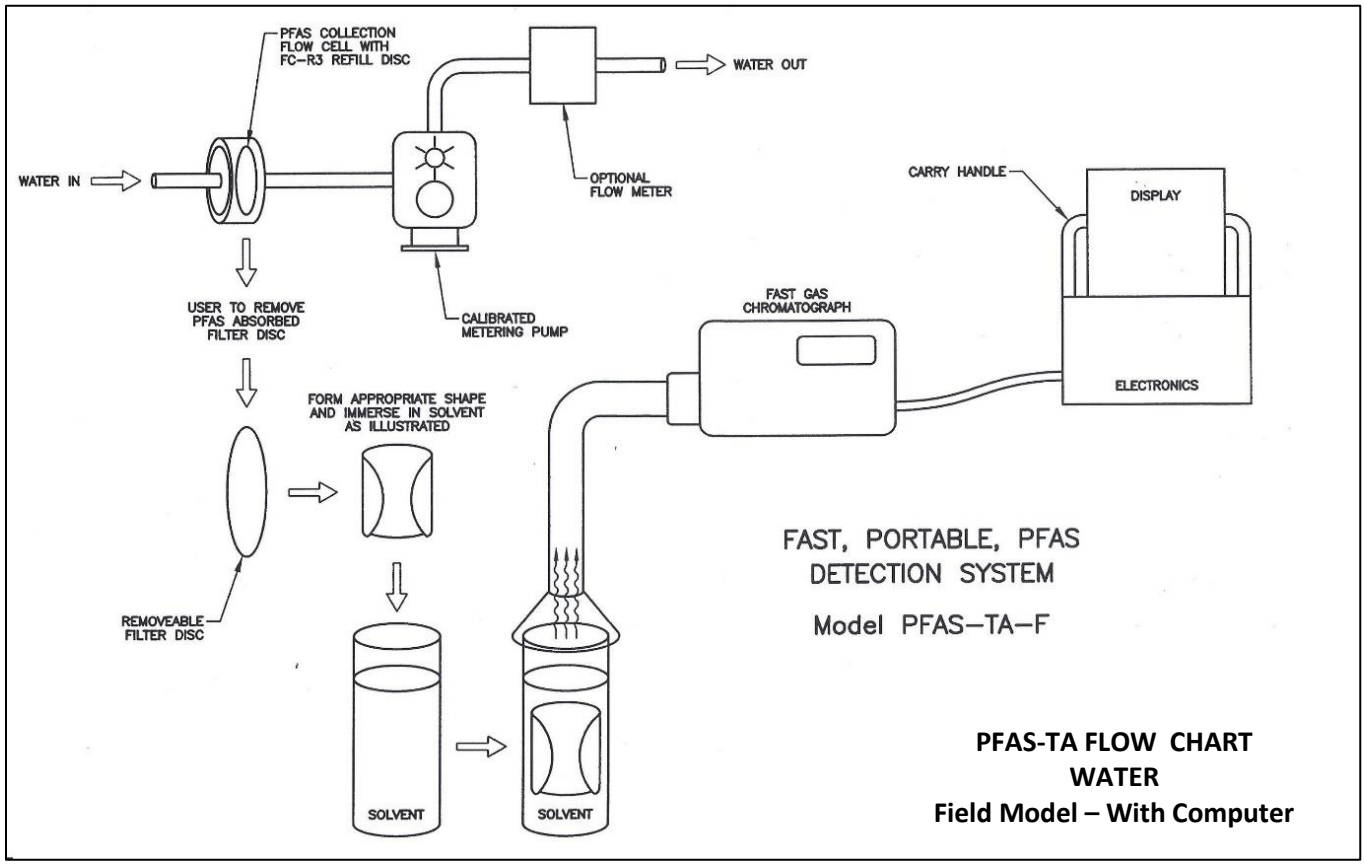
PFAS WATER FLOW CHART



PFAS-TA FLOW CHART
WATER
Field Model – With Computer

PFAS-TA-L (Laboratory Use)
Model has Optional Computer.

PFAS-TA-F (Field Use)
Model includes Computer.

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