

ANALYZER SOLUTIONS FOR YOUR PROCESS!

## ta7000 Series

### The New Standard For UHP Gas Monitoring

The ta7000 series are precise, high performance systems. The units are rugged, reliable, easy to maintain and built to last.

#### FEATURES

- On-board gas regulation
- Carrier gas purifier
- Multiport diaphragm valve
- Proven chromatography
- RGD Reduction Gas Detector (ta7000R)
- FID Flame Ionization Detector (ta7000F)
- Internal calibration system.
- Configured as dedicated analyzer for a specific types of gas



The ta7000 Series are designed to monitor specific impurities in ultra high purity bulk gases.

- **ta7000R**— hydrogen and carbon monoxide
- **ta7000F** — methane, carbon dioxide and non-methane hydrocarbon

## Specifications

### Model designation and detection limit specifications

SAMPLE GAS	MODEL	Lower Detection Limit*	
		H <sub>2</sub> ppb	CO ppb
Nitrogen	ta7000R-N <sub>2</sub>	< 0.5	< 0.5
Argon	ta7000R-Ar	< 0.5	< 0.5
Helium	ta7000R-He	< 0.5	< 0.5
Oxygen	ta7000R-O <sub>2</sub>	< 0.5	< 0.5

\* lower detection limits may be attainable as an option upon request.

### Performance

Accuracy, EDL Mode	Greater of $\pm 0.25$ ppb H <sub>2</sub> ; $\pm 0.25$ ppb CO; $\pm 10\%$ of reading
Range	0 to 199.9 ppb
Response Time	5 minutes to 99% response; 30 minutes to 75% response in EDL mode. Response time is independent of sample concentration.
Ambient Operating Temperature	60 to 90° F (16 to 32°C)
Sample Compatibility	Specific models available for N <sub>2</sub> , Ar, He, or O <sub>2</sub> analysis
Resolution, Display	0.1 ppb
Resolution, Communication Ports	0.01 ppb

### Sample Gas Supplies

Inlet Pressure Range	70 to 90 psig (4.8 to 6.1 bar)
Inlet Pressure Stability	$\pm 2\%$ , regulator required
Return Pressure	Atmospheric vent is optimal; $\pm 0.5$ psig maximum
Flow Rate	300 cc/min minimum; sample bypass at 50 cc/min.
Temperature	60 to 100°F (16 to 38°C), optimum when temperature maintained $\pm 2^\circ\text{C}$
Maximum Impurity Levels	200 ppb moisture, CO <sub>2</sub> , Hydrocarbons

### Chassis

Dimensions	7" H x 16.8" W x 26.5" D (18 cm x 43 cm x 67 cm)
Weight	35 lb. (15.9 kg)
Power	100 - 120 VAC, 50/60 Hz; 200 - 240 VAC, 50/60 Hz

### Gas Ports

Carrier/Sample Inlet	1/4-inch VCR compatible
Actuator Air	1/8-inch VICI compression
Sample Outlet	1/16-inch VICI compression
Aux (Calibration)	1/16-inch VICI compression

### Outputs

Display	LCD graphics, backlit, 100mm x 150mm
Printer Port	Concentration, chromatogram, and diagnostic reports
Serial PLC Port	Concentration data and alarms via RS232
4 to 20mA (optional)	Concentration signals and status relay contacts

# ta7000F

## Specifications

### Model designation and detection limit specifications

SAMPLE GAS	MODEL	Lower Detection Limit		
		CH <sub>4</sub> ppb	CO <sub>2</sub> ppb	NMHC ppb
Nitrogen	ta7000R-N <sub>2</sub>	< 0.5	< 1.0	< 2.0
Argon	ta7000R-Ar	< 0.5	< 1.0	< 2.0
Helium	ta7000R-He	< 0.5	< 1.0	< 2.0
Oxygen	ta7000R-O <sub>2</sub>	< 1.0	< 2.0	< 2.0
Hydrogen	ta7000F-H <sub>2</sub>	< 1.0	< 1.0	< 2.0

### Performance

Accuracy, EDL Mode	Greater of $\pm 0.25$ ppb CH <sub>4</sub> ; $\pm 0.5$ ppb CO <sub>2</sub> ; $\pm 1.0$ ppb NMHC; $\pm 10\%$ of reading
Range	0 to 199.9 ppb
Response Time	10 minutes to 99% response. 60 minutes to 75% response in EDL mode. Response time is independent of sample concentration.
Ambient Operating Temperature	60 to 90°F (16 to 32°C)
Sample Compatibility	Specific models available for N <sub>2</sub> , Ar, He, O <sub>2</sub> , or H <sub>2</sub> analysis
Resolution, Display	0.1 ppb
Resolution, Communication Ports	0.01 ppb

### Sample Gas Supplies

Inlet Pressure Range	70 to 90 psig (4.8 to 6.1 bar)
Inlet Pressure Stability	$\pm 2\%$ , regulator required
Return Pressure	Atmospheric vent is optimal, $\pm 0.5$ psig maximum
Flow Rate	300 cc/min minimum, sample at 50 cc/min.
Temperature	60 to 100°F (16 to 38°C), optimum when temperature maintained $\pm 2^\circ\text{C}$
Maximum Impurity Levels	200 ppb Moisture, CO <sub>2</sub> , Hydrocarbons

### Chassis

Dimensions	7" H x 16.8" W x 26.5" D (18 cm x 43 cm x 67 cm )
Weight	35 lb. (15.9 kg)
Power	100 - 120 VAC, 50/60 Hz; 200 - 240 VAC, 50/60 Hz

### Gas Ports

Carrier/Sample Inlet	1/4-inch VCR compatible
Sample Inlet	1/4-inch VCR compatible (H <sub>2</sub> and O <sub>2</sub> Models Only)
FID Air	1/16-inch VICI compression
FID H <sub>2</sub>	1/16-inch VICI compression
AUX (Calibration)	1/16-inch VICI compression
Sample Outlet	1/16-inch VICI compression
FID H <sub>2</sub> Shut-Off	1/8-inch VICI compression (Supplied at 57 psi (3.9 bar))
Actuator Gas	1/8-inch VICI compression

### Outputs

Display	LCD graphics, backlit, 100mm x 150mm
Printer Port	Concentration, chromatogram, and diagnostic reports
Serial PLC Port	Concentration data and alarms via RS232
4 to 20ma (optional)	Concentration signals and status relay contacts

# Installation Requirements ta7000R and ta7000F

## Sample Gas

Inlet Fitting	1/4-inch face seal fitting*
Inlet Pressure Range	75 to 90 psig (4.8 to 6.1 bar)
Inlet Pressure Stability	± 2%, UHP regulator required
Vent pressure	Atmospheric pressure vent is optimal, + 0.5 psig maximum
Flow Rate	300 cc/min minimum, sample bypass at 50 cc/min

## Calibration Gas

Inlet Fitting	1/16-inch VICI compression fitting
Cylinder Concentration	5 to 10 ppm H <sub>2</sub> , CO, CH <sub>4</sub> , CO <sub>2</sub> , and ethane (C <sub>2</sub> H <sub>6</sub> ), balance nitrogen
Cylinder Volume	100 cubic feet minimum (2800L)
Supply Pressure	80 to 90 psig (5.3 to 6.1 bar)
Consumption	Approximately 1.0 L per calibration (4 to 8 L/month), automatic shut off between calibrations

\* 1/4-inch face seal x 1/16-inch adapter fittings are available from Trace Analytical.

## ta7000F - Additional Requirements

### FID Hydrogen

Inlet Fitting	1/16-inch VICI compression fitting
Inlet Pressure Range	50 to 60 psig (3.4 to 4.1 bar)
Inlet Pressure Stability	± 2%, UHP regulator required
Flow rate	35 cc/min
Purity	Hydrocarbons, CO, CO <sub>2</sub> < 1 ppm

### FID Air

Inlet Fitting	1/16-inch VICI compression fitting
Inlet Pressure Range	50 to 60 psig (3.4 to 4.1 bar)
Inlet Pressure Stability	± 2%, regulator required
Flow Rate	250 cc/min
Purity	< 1 ppm total hydrocarbons, dew point < - 65°C

### Nitrogen Carrier Gas (for Oxygen and Hydrogen models only)

Inlet Fitting	1/4-inch face seal fitting*
Inlet Pressure Range	75 to 90 psig (4.8 to 6.1 bar)
Inlet Pressure Stability	± 2%, UHP regulator required
Flow Rate	300 cc/min
Purity	99.9999% (< 1 ppm total impurity content)

\* 1/4-inch face seal x 1/16-inch adapter fittings are available from Trace Analytical.

Refer to bulletin ta7000UHP for more information.

One of a family of innovative process analyzer solutions from AMETEK Process Instruments. Specifications subject to change without notice.

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