

Model 5800 Moisture Analyzer

Excellent Performance for Critical Moisture Measurements

Critical moisture measurement applications include high purity gas production; olefin manufacture, storage, and transmission; semiconductor gases; and industrial gas production and quality assurance. For these applications and more, turn to AMETEK Process Instruments' Model 5800 moisture analyzer. The Model 5800 offers a truly remarkable combination of performance benefits: exceptional accuracy, multi-gas compatibility, fast response speed, and wide measurement range.



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Superior Benefits

Exceptional accuracy

The Model 5800 is ideal for moisture applications that require accurate results. The following brief chart illustrates the order of magnitude accuracy gain from the Model 5800 compared with other moisture analyzers that specify dew/frost point accuracy of $\pm .2$ to 3°C .

MOISTURE CONCENTRATION	MODEL 5800 ACCURACY	OTHER ANALYZERS
0.100 ppmv	± 20 ppbv	+65 ppbv to -45 ppbv
1.0 ppmv	± 0.05 ppmv	+0.6 ppmv to -0.4 ppmv
5.0 ppmv	± 0.25 ppmv	+2.6 ppmv to -1.8 ppmv

Multigas compatibility

If you want to analyze industrial, high purity, or semiconductor grade gases and need an instrument that is compatible with a wide range of gases, turn to the Model 5800. The Model 5800 is completely compatible with virtually all noncorrosive gases including inert gases (He, Ar, Ne, Xe, Kr), O_2 , H_2 , N_2 , NO, CO, hydrocarbons,

air, and many specialty gases such as sulfur hexafluoride. Changing gases is simple and quick.

Fast response speed

The Model 5800 reaches 63% of a steady state reading in less than five minutes, far faster than other moisture

analyzers in the 0.1 to 100 ppmv range. Because the analyzer employs unique non-equilibrium measurement techniques, the Model 5800 delivers this exceptional response during drydown as well as when wetting-up.

Internal verification

The NIST-traceable internal moisture generator allows Model 5800

users to quickly confirm analytical performance at any time on your sample gas. The generator adds a known amount of moisture to conditioned gas. The resulting known wet gas is then directed to the analyzer's sensor, verifying proper sensor and system operation. An alarm contact alerts the operator if the analyzer fails this verification process. The verification sequence may be started on programmable schedule or on manual demand.

Wide measurement range

The Model 5800 measures from 0.02 ppmv (20 ppbv) to 1000 ppmv. The calibrated range is 0.1 ppmv to 100 ppmv. Two custom settable 4 to 20 mA outputs are provided which may be assigned to cover any portion of the operating range. One analog output is autoranging to maintain high output resolution over the widest measurement range possible.

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Performance Specifications

Compatible Gases: Inerts (He, Ar, Ne, Xe, Kr), O₂, H₂, N₂, NO, CO, hydrocarbons, air, and some specialty gases such as sulfur hexafluoride. CO₂ requires a custom measurement cell. (Contact the factory to confirm compatibility with other gases.)

Range: 0.02 to 100 ppmv. Indicates trend to 1000 ppmv. Display is software settable to show ppmv, ppbv, or dew point (requires pressure input)

Limit of Detection: 0.02 ppm

Accuracy: ±20 ppbv or 5% of the reading, whichever is greater

Sensitivity: 5 ppbv or 0.5% of instrument range, whichever is greater

Response Time: 63% of a step change in either direction in less than 5 minutes

Inlet Pressure
1 to 6.89 Bar (15 to 100 psig)

Exhaust Pressure: Atmospheric

Sample Flow Requirements
600 ml/min at STP

Sample Gas Temperature
0° to 100°C (32° to 212°F)

Outputs
Four line x 20 character vacuum fluorescent digital display
Two fully programmable 4 to 20 mA analog outputs, into
1200 ohm load
RS485 bidirectional serial port

Alarms: Three independent contact closures, 32 Vdc maximum, 1 A noninductive load, for system alarm, range alert/or calibration alert, concentration alert/or calibration alert. Alarm signals are available on the RS-485 interface.

Software Features: Displays ppmv or ppbv moisture reading or dew point, timer status, and instrument status

Environmentals: 4° to 40°C (40° to 105°F), 90% relative humidity, non-condensing, noncorrosive atmosphere. Optimal performance in ppbv applications is achieved when the ambient temperature is maintained within ±2°C.

Utility Requirements
85 to 265 volts, 47 to 63 Hz

Mounting Options: Available for stand-alone or 19-inch rack installation

Dimensions (W x H x D): 43.2 x 13.2 x 38.1 cm (17 x 5.2 x 15 in.)

Rack-mount Version: Same as above except height is 22.1 cm (8.71 in.)

Net Weight: 16.79 kg (37 lbs.)

Approvals and Certifications:
NEC Class I, Division 2, Groups A, B, C, D EU EN50081/82; EN61010-1

Typical Applications

High purity gas production

Cryogenic separation produces inherently dry gas, typically on the order of a few hundred ppbv moisture. Suddenly increasing moisture is a widely used alarm condition because of the danger of catastrophic separator freeze-up and the down time it causes. The Model 5800 satisfies this need perfectly, with fast response to increasing moisture and accurate moisture readings in the critical 100 ppbv to 1 ppmv alarm range.

Olefin production, storage, and transmission

Olefin processing involves low temperature steps and moisture sensitive catalysts. By delivering remarkable measurement accuracy from sub-0.1 ppm to a few ppm and on-board measurement verification, the Model 5800 fulfills all NEC Division 2 moisture in olefin applications: preventing cold box plugging, preventing turbo-expander freeze-up, precise fiscal metering, and prevention of catalyst poisoning.

Semiconductor gases

The Model 5800 provides reliable, efficient, and inexpensive moisture analysis for the semiconductor industry. Typical applications include continuous monitoring at points of connection, spot monitoring at drop sites to verify distribution system installation or repair, and verification of cylinder gas quality. The Model 5800 is also suitable for point of use analysis, especially at critical processing steps.

AMETEK Process Instruments has prepared a CD ROM with comprehensive information about the use of the 5800 in semiconductor applications. Please contact AMETEK Process Instruments for your copy.



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