



Water Vapor Transmission Rate Analyzer

AquaSense Model™ 7101

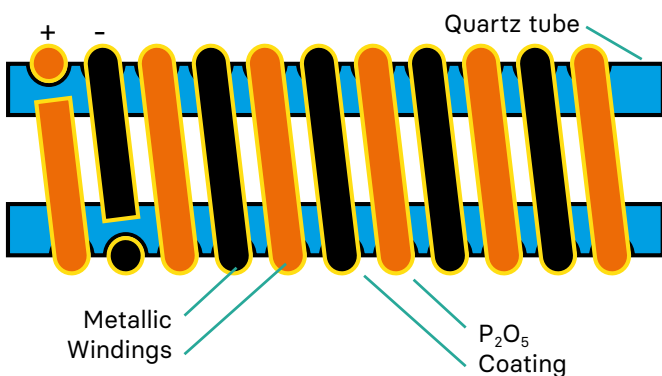
When barrier performance is critical, you need more than just a number—you need confidence.

The AquaSense™ 7101 is engineered around a fundamental principle of physics, delivering an absolute measure of water vapor transmission. It provides the highest sensitivity and reliability, backed by a system of intrinsic data integrity.

What's new

- Completely new, user-focused design
- Q-Seal™ gas-free cell closure for simple and effective film loading
- "Test Condition Matrix" (TCM™) feature to test a sample at up to ten different conditions with one touch
- Expandable up to 32 cells for maximum productivity
- Automatic relative humidity and temperature control

P₂O₅ Sensor Phosphorous Pentoxide:



To achieve an absolute measure, the technology draws upon a fundamental principal of physics.

The phosphorous pentoxide (P₂O₅) moisture sensor consists of a dual platinum winding formed around a quartz tube.

The change in the resistance across the windings creates a change in the measured current. According to Faraday's Law this is directly proportional to the amount of moisture in the gas steam.

The P₂O₅ Coulometric Sensor: An Absolute Measurement Principle

The proprietary Phosphorous Pentoxide (P₂O₅) sensor is the engine of the 7101. It operates according to Faraday's Law, providing an intrinsic and absolute measurement of moisture. This method consumes virtually 100% of the water vapor, generating a precise electrical current directly proportional to the amount of water. This delivers tangible benefits

No calibration required

As an absolute, stoichiometric method, the sensor does not require routine calibration, saving you time and cost while ensuring accuracy.

Unmatched Sensitivity

Trust your results for ultra-high barrier materials with a range starting from 0.002 g/(m²-d).

Built-in Protection

An Anti-Surge™ feature prevents sensor damage from excessive moisture, extending the long life of the sensor.

Networking

This system runs on a full Windows® operating system enabling safe, secure operation and network connectivity.

Remote, Internet based support

Systemch Illinois can access your instrument (with your permission) to diagnose and repair system errors without the cost and time of an on-site visit.

Direct Compliance with Coulometric WVTR Standards

The AquaSense 7101 is engineered for direct compliance with the international standards written specifically for its sensor technology.

Because the instrument utilizes the exact measurement principle and apparatus described in ASTM F3299 and ISO 15106-3, you can operate with full confidence that your methods are sound, your data is defensible, and your results align with global industry standards.

Industry Standards

- ASTM F3299-18
- ISO 15106-3

Applications

- Barrier Film, PET Bottles, Containers, Closures, Bags, Flexible pouches

Test Conditions

Test Temperature Range:

10°C to 40°C (50°F to 104°F)

Controlled RH Testing Range:

10% to 90% \pm 2%, or 100%

Sample size:

50cm², adapters available for smaller sizes

Features & benefits:

- ASTM F3299 & ISO 15106-3 compliant
- Absolute measurement based on Faraday's Law
- No calibration required
- High sensitivity P₂O₅ coulometric sensor
- Wide humidity range
- Easy to operate
- Fully automatic
- Expandable Satellites

Technical Specification:

Measuring Range for Films	Films
Normal Range Unmasked	0.002 to 10 g/m ² •day
Normal Range Masked	0.02 to 70 g/m ² •day
Extended Range Unmasked	0.02 to 70 g/m ² •day
Extended Range Masked	0.2 to 1000 g/m ² •day
Measuring Range for Packages	Packages
Normal Range	0.00001 to 0.05 g/pack•day
Extended Range	0.0001 to 0.05 g/pack•day
Resolution g/(m² • day)	0.001
Repeatability g/(m² • day)	0.002 or 2% whichever is greater

Disclaimer

The information contained in this document is liable to modification from time to time in the light of experience and our policy of continuous product development. Check the Industrial Physics website for the latest version.

Contact Details

web. www.industrialphysics.com

email. info@industrialphysics.com