

The Moisture Monitor™

MODEL 7701 WITH MICROWAVE MOISTURE SENSOR, TYPE 9900



ONE RANGE... BONE DRY TO SOAKING WET!

A momentous breakthrough... the world's first full-span moisture sensor is here!

Perfect linearity for most materials is a great feature. Add instant response, deep penetration, no hysteresis, and no drift.

Then, apply this one piece microwave sensor to textiles, paper, wood, grain, meat, vegetables, tobacco, mortar, soil, sand, wastes, paint, glue, plus lubricants and fuels, chemical solutions, colloidal suspensions... You name it! Non-contact and non-invasive.

The 9900 starts measuring at absolute zero, a place where few moisture sensors have ever been. From there, its standard 4-20 mA output tracks moisture all the way to saturation... a perfect match for process instrumentation. Accu-Lock high speed signal processing eliminates effects of material position variation.

After 56 years of research, development, and the manufacture of tens of thousands of moisture sensors sold the world over, Strandberg has created something basically new.

The 9900 is another technological breakthrough from Strandberg!



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-GENERAL INFORMATION-

The Strandberg Type 9900 Microwave Moisture Sensor detects moisture in sheet and bulk materials in process from bone dry to full wet saturation. For sheet materials and most bulk materials, its electrical output is directly and linearly proportional to moisture, an exceptional advantage that permits direct numerical scaling plus single and two-point calibration.

Unlike infrared moisture sensors, it is unaffected by color and its penetration into the product is deep.

The non-invasive, reflectance-type sensor even penetrates plastic pipes, tanks, and laboratory beakers to sense the water content of chemical solutions and suspensions, including polluted water and other contaminated liquids. It also senses water in petroleum, including aircraft fuels to turn pumps off before it reaches the fuel tanks!

An electronic oscillator generates safe, low-energy microwaves in the region of extremely high sensitivity to the water molecule. The energy is directed into both solids and liquids from which in-depth reflections are returned to the sensor. It is totally unaffected by product temperature, and it spans the entire moisture spectrum from zero percent water content to saturation in solids and nothing but water in liquids. Linearity on liquids is excellent over wide ranges of concentration.

It works on textiles, paper, boards, veneers, bulk materials, such as powders and grains, wood chips, tobacco, peanuts, processed foods, sand, mortar, soil, sludge, wastes, paint, glue, plus lubricants and fuels, chemical solutions, and colloidal suspensions. The sensor literally looks through plastic windows in chutes and walls to see the moisture inside. It attaches directly to special Teflon pipe sections to monitor liquid concentrations in process.

The Moisture Monitor, Model 7701, provides the digital display for this remarkable sensor. It is scaleable in units of moisture density or percentages of moisture from 0.0 to 999.9.

The Interface Type MSI-140 provides power to the 9900 Microwave Moisture Sensor and controls its internal temperature. An optional motor-driven positioning device is available for materials with more significant position or height variability to maintain optimal sensor position.

For applications in which significant variations in material height or position, a second set of analog outputs is provided using the ACCU-LOCK+ high speed signal processing producing signal stability.

Here is something really new in moisture instrumentation!

-SPECIFICATIONS-

Principle of Operation	Reflectance of low-energy microwaves into a common transmitter-receiver
Range	0-% water content, dry or wet basis, at saturation in solids and liquids
Weights and Dimensions	
Sensor	5.9 kg (13.0 lb), 156 mm (6.125") wide, 156 mm (6.125") long, 159 mm (6.250") high
Interface, Type MSI-140	11.0 lb (5.0 kg); 12.75" (324mm) wide, 8.0" (203mm) high, 5.25" (133mm) deep
Monitor	1.7 kg (3.7 lb), 259 mm (10.2") high, 175 mm (6.9") wide, 112 mm (4.4") deep
Housings	
Sensor	Stainless steel NEMA-4 water-resistant enclosure with chemically-inert sensor window
Interface, Type MSI-140 ...	NEMA-4 water-resistant enclosure with hinged door for use in wet and dusty processing areas
Monitor	Fiber-glass NEMA-4X water-resistant enclosure with hinged door for use in wet and dusty processing areas
Sensor Temperature Range	-30 to +60 °C (-22 to 140 °F)
Relative Humidity Range	0-100%
Power Requirements	85-265 volts, 50/60 Hz
Monitor	Moisture Monitor, Model 7701, with 4-figure, 20 mm (0.8") scaleable LED and 2-line scrollable LCD, includes set point controller, 4-20 mA d-c analog output, and RS-232 or RS-485 communications
Repeatability	within 0.2 percent



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