



ohmic instruments co.

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INDUSTRIAL & ENVIRONMENTAL SENSORS, INSTRUMENTS & CONTROLS SINCE 1969

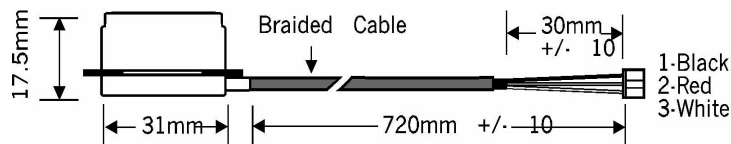
ABSOLUTE HUMIDITY SENSOR - ABS-300 **RELIABLE MEASUREMENT OF WATER VAPOR IN AIR OR GASES TO 200°C**

- **RANGE: 0-130 g/m³**
- **OUTPUT 0-13 mV**
- **OPERATION TO +200°C (+392°F)**
- **IMMUNE TO CHEMICAL VAPORS**
- **NOT AFFECTED BY CONDENSATION**
- **COST EFFECTIVE, OEM PRICING AVAILABLE**



APPLICATIONS

HVAC	Autoclaves
Energy Management	Microwave Ovens
Desiccant Heat Recovery	Medical Air Systems
Clothing Dryers	Food Processing
Compressed Air Systems	Engine Performance
Industrial Dryers	Fuel Cells
Steam Injected Ovens	Catalyst Production



ACCURATE & REPEATABLE CONTROL OF THE MASS -TO-VOLUME RATIO OF WATER VAPOR

Absolute humidity is the ratio of the mass of water vapor to the volume of air or gas measured in *grams per cubic meter* or *grains per cubic foot*. ABS-300 sensors provide a voltage output proportional to the absolute humidity surrounding it. Unlike relative humidity sensors which measure the amount of water vapor *relative* to the saturation point at a given temperature, absolute humidity can be used to maintain or monitor a constant water vapor mass-to-volume ratio.

ABS-300 sensors may be used to control material to suitable moisture levels in drying operations. When materials are dried by heating or with a dry air purge, the increase in the absolute humidity of the air is directly proportional to the amount of water lost by the material. These sensors can also provide feedback signal to a controller to maintain optimum moisture levels by injecting steam or atomized water into the atmosphere. In addition, the ABS-300 can be used to monitor chemical or combustion reactions where one of the by-products is water vapor; such as in distillation, engine, and fuel-cells.

ABS-300 Absolute Humidity Sensors consist of two

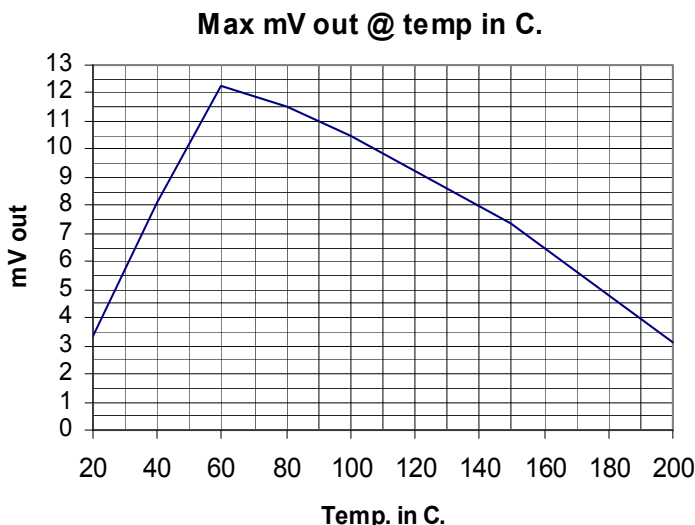
matched thermistor elements: One is hermetically glass-encapsulated in dry nitrogen, the other is exposed to the environment. When the thermistors are energized, the heat dissipated from the sealed thermistor is greater than the exposed thermistor due to the difference in thermal conductivity. The difference in resistance between the thermistors is directly proportional to the absolute humidity. A simple resistor network provides a 0-13mV output equal to the range of 0-130 g/m³. In addition a single ABS-300 sensor may be calibrated to OHMIC's AHT-200-01 signal conditioning card to provide 0-5 or 0-10Vdc outputs, or to the AHT-200-02 signal conditioning card to provide a 4-20 mA output.

Calibration is performed by placing the sensor into a RH chamber and adjusting the output. The sensor may also be calibrated to any humidity reference standard with a one-point calibration potentiometer.

These sensors are very durable. They operate at high temperature and are resistant to chemical vapors due to the use of inert materials-of-construction; i.e. glass, semiconductor material for the thermistors, high temperature plastic, and aluminum.

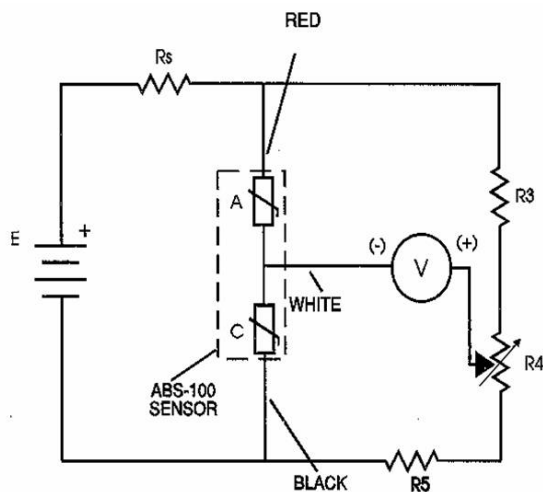
WARRANTY: All products manufactured by OHMIC Co. are warranted to be free of defects in material and workmanship for one year after delivery. Any equipment found to be defective within this period will be repaired or replaced free of charge.

SPECIFICATIONS - ABS-300



Power	15Vdc Regulated, @40mA
Range	0-130 g/m ³ (0-56.8 grains/Ft ³)
Output	0-13 mV (temperature dependent)
Accuracy	±3g/m ³ at 35g/m ³ & 40°C
Repeatability	±0.5mV
Long-Term Drift	Negligible
Air Velocity Influence	0.5 mV at 1 M/S
Operating Temperature	0 to +200°C (+32° to +392°F)
	* Cable Max Temp. (150°C)
Stabilization Time	120 Sec After Power is Applied
Response Time	50 Seconds for 90% Change
Dielectric Strength	600 Vac for 1 Sec
Sensor Housing	Aluminum
Cable	Steel Overbraided, Rubber Insulated, 3-Conductor 22 AWG, ABS-300 28 inches Long.
	**ABS-300-15 15 feet long.

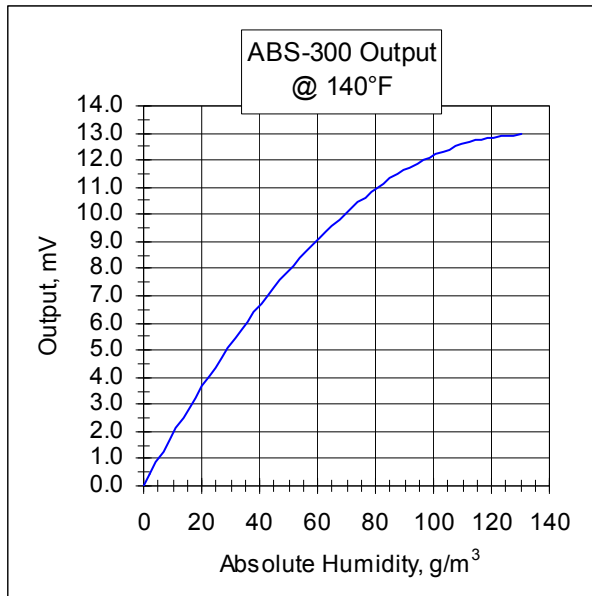
MEASURING CIRCUIT



- E = 15 VDC
- Rs = Fixed Resistor for Current Limiter: 330Ω
- R3 = Fixed Resistor 10KΩ, (1%)
- R4 = 100Ω Calibration Potentiometer
- R5 = Fixed Resistor 10KΩ, (1%)
- A = Detection Thermistor
- C = Reference Thermistor
- V = High Impedance Voltmeter

* For more information go to www.ohmicinstruments.com and download the product manual.

ABSOLUTE HUMIDITY vs VOLTAGE OUTPUT



ENGINEERING SUPPORT: OHMIC Instruments Co. designs and manufactures a full line of sensors, environmental and bio-medical instruments and controls. Many of our products are custom designed to meet specific requirements. Our engineers will be pleased to discuss your application.



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