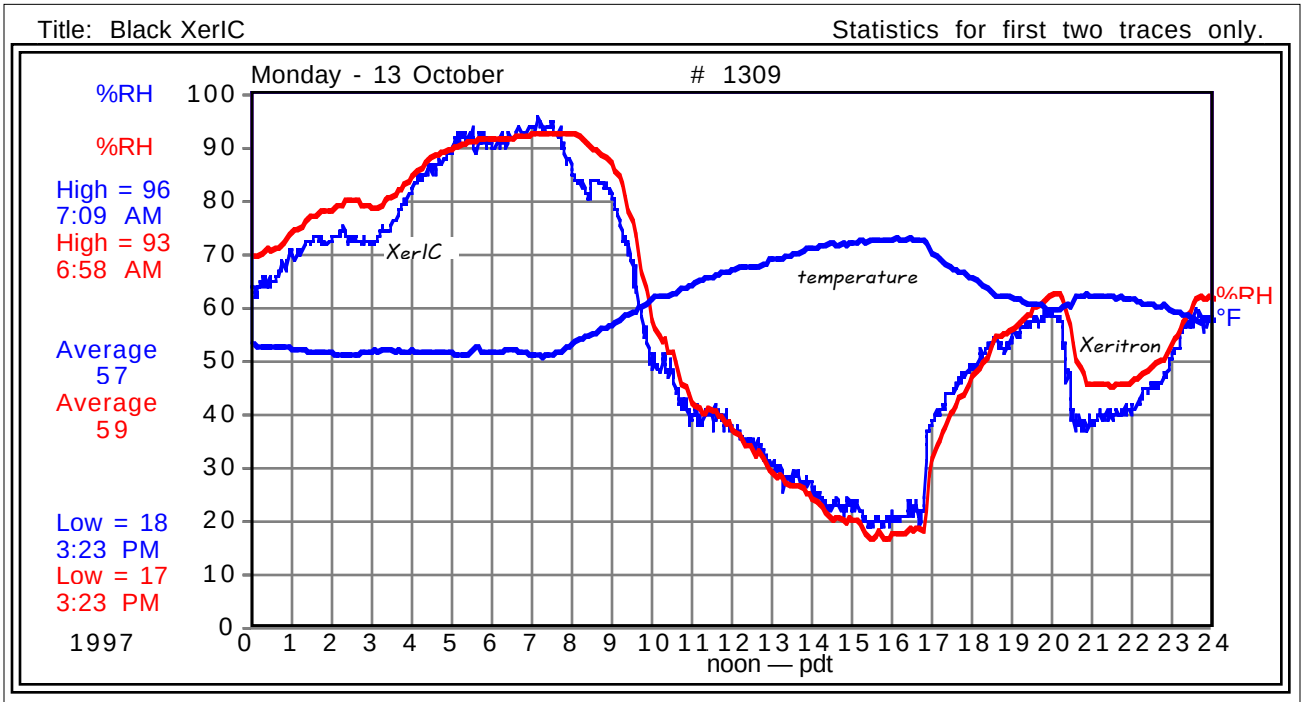
NEWS!



The first full day of comparative data between TWO XerIC™ Sensors and a Xeritron Probe (including temperature). The XerIC data were gathered each 30 seconds; the Xeritron data were gathered each 300 seconds (using a preset installation in San Francisco.)

First peek at the XerIC™ Sensor

Bear Facts -- #84

Thirty years of practical experience with the most rugged humidity sensor available has led to an issued patent for defining these unique and proven technology concepts in the world of modern miniature electronics.
Initial results are remarkable.

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the DataBear

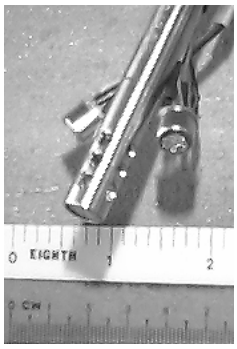
Bear Facts are published to provide useful insights into the operation and applications for the DataBear™ Measurer and associated complete instruments.

Keeping in Touch!

Hygrometrix, Inc., now located near San Diego (in Alpine, California) and formerly in the San Francisco Bay Area (Oakland), perfected the Xeritron™ Relative Humidity Sensor. Langan Products, Inc., after searching all technologies chose the Xeritron sensor for its portable electronic hygrothermographs when they were introduced in 1990. They have served well; all remain in use, to the best of our knowledge.

Over the years, the Xeritron inventor Ralph Fenner (founder and chief executive/scientist at Hygrometrix) researched ways to transfer the biologic-based shear stress/strain gauge methods of the Xeritron (it works using the seed-throwing arm of a geranium plant) to artificial materials. The breakthrough came with the introduction of MEMS (micro-electro-mechanical-structures) when introduced in 1994, first as pressure sensors and then as accelerometers for air bags. Ralph experimented with various compounds and adaptations/combinations of these tiny structures. In 1996, he and Hygrometrix' Chief Engineer, Robert Quinn, were issued U S Patent # 5,563,341 (8 October 1996), *Vapor Pressure Sensor and Method*. The MEMS stress-strain humidity sensor was born. A dab of polymer flexes a modified strain gauge in response to humidity changes. Water vapor has become the third property measurable by these tiny transducers.

Two T05-mounted HMX2000 sensors shown with a Xeritron Probe.



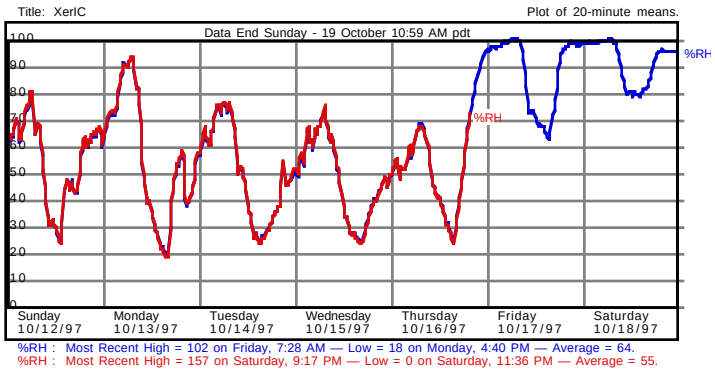
Each sensor is connected to signal-conditioning electronics to provide a voltage suitable for display or data acquisition. More details on both technologies are available on the Internet: <http://www.hygrometrix.com>

Since the patent issued, the MEMS humidity sensor has been reduced to practice in small preproduction quantities, and the first results* of the first sensors, when combined into an instrument configuration, are shown in this Bear Facts.

They are impressive. The humidity measurements of separate sensors track essentially on top of each other. The speed of response is measured in a few seconds, *full scale*. They are as easily calibrated and verified as is their ancestor, the Xeritron. They are reproducible in quantity using modern semiconductor technologies. They are rugged and tiny, measuring only 2 by 2 millimeters before being mounted. (The mounts are various. The one used for the presented results are T05 'transistor' packages.)

Langan Products, Inc. has trademarked their configuration of this sensor, combining electronics, as the "XerIC" Sensor. Hygrometrix provides the sensor itself as their HMX2000™ product line

The XerIC Sensor measures relative humidity, and all of it variants, plus temperature. Full range (0 to 100%RH). Response time: seconds (we are still testing). Initial configuration: a 3/8ths-inch cylinder one inch long (1 cm by 2.5 cm) on the end of a cable. Associated electronics can be a few to hundreds of meters distance from the sensor, at the DataBear Measurer. The knowledge of relative humidity gained from a decade of field measurements is transferred to the introduction of this new technology. This should allow a smooth transition for a new and reliable sensing capability that should revolutionize the measurement of gaseous water.



A week of two XerIC Sensors tracking together (through Thursday): outside at Langan San Francisco office during a hot then cool spell. Notice how dry the afternoon humidity becomes with winds from the land. (See Bear Facts #28, "A Catastrophe in the Making" about the tragic Berkeley/Oakland 1991 fire.) The weather shifted dramatically at the end of the week, and one sensor was extracted for other tests..

* the rapid response of the XerIC Sensor provides data with greater variation; what appears as 'noise' are real responses to changes in humidity!

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With the publication of these impressive data, we welcome all interested users to contact us as we design and produce the first hygrothermographs available using the impressive XerIC Sensors.
Initial products using these sensors are planned for delivery in early 1998.