

# μSMART SERIES

## Relative Humidity Sensor HU1



The new μSmart series HU1 sensor utilises an Active polymer capacitor as a sensing element and provides reliable readings of Relative Humidity with minimum maintenance. The Di-electric constant of the element surface changes with the absorption of atmospheric moisture. The absorbed moisture causes a change in capacitance that is detected and converted to a Relative humidity reading.

The sensing element is connected to a fully temperature compensated microprocessor controlled electronics package, providing output in 0.01% Relative humidity steps under standard mode. The μProcessor provides a host of features such as control and alarm outputs, 16-bit resolution (1 part in 65,000) and software switchable output signals. Each unit is provided with a multi-point calibration curve for maximum accuracy across the range.

With most systems, changeover of a sensor means either recalibration of the system or resetting of parameters in the data logger or other data collection devices. The μSmart sensor eliminates the requirement as the on-board microprocessor ensures that all sensor types exhibit the same electronic specifications thus; have identical performance characteristics.

Sensors conform to a global algorithm in all output modes and for operation in digital, voltage or current mode, sensors are supplied with individual calibration certificates to enable software conversion to engineering units. In serial mode, sensors report in engineering units and the global algorithm is implemented internally.

In conditions where relative humidity exceeds 90%, readings may vary significantly as relatively minor changes in temperature cause condensation on the sensor. Readings in excess of 100% may occur. Once moisture has evaporated from the surface of the sensor reliable measurements will quickly be established and "Recovery time" is usually less than one hour.

The HU1 Series has a robust design incorporating a stainless steel body. A sintered bronze filter is used for ease of maintenance and protects the sensor from insects and airborne debris.

### Features

- Very low Maintenance
- Rapid Response
- Stainless steel body
- Robust Design
- High Speed Version Available
- Low Power Consumption

### Applications

- Crop Studies
- Microclimate Studies
- Horticulture and Greenhouses
- Process Control
- Pest Management
- Animal and Human Comfort
- Agriculture and Forestry

### Quality Assurance

Monitor Sensors products are manufactured under a third party accredited System ISO9002.

## Specifications

<b>Sensor Type:</b>	Active Polymer Di-electric
<b>Range:</b>	0-100%
<b>Hysteresis:</b>	0.5%
<b>Response Time:</b>	2 seconds for 90% change
<b>Accuracy:</b>	+/-2% over range
<b>Temperature Range:</b>	-30°C to +80°C
<b>Calibration Method:</b>	Multi-point calibration with temperature compensation
<b>Measurement Units:</b>	Percentage (%) Relative Humidity
<b>Resolution:</b>	0.1% or 0.01% in high resolution
<b>Dual Output:</b>	Serial data ASCII format. Plus, either Voltage 0-1 volt or 0-2.5 volt, or Frequency +5 volt pulse 2-10 Hz
<b>Options:</b>	4-20 ma Output RS232
<b>Power Supply:</b>	5-28 v DC unregulated
<b>Current Drain:</b>	2 ma nominal
<b>Weight (unpacked):</b>	120 grams
<b>Dimensions:</b>	Overall length 165 mm Diameter 24 mm
<b>Mounting:</b>	Designed for mounting in Monitor Sensor Shelter (Model SS4/SS5). Airflow should not be obstructed.
<b>Cable Details:</b>	Standard product has 0.8 mtrs of cable. Longer cable lengths may be ordered {Note: The HU1 sensor is not recommended for monitoring where relative humidity is continuously above 95%. A Wet and dry bulb measurement using an aspirated shelter should be substituted instead}.
<b>Associated Product:</b>	AWS1 Automatic Weather Station SS4/SS5 Sensor Shelters SS6 Aspirated Sensor Shelter TA1 Air Temperature Sensor TA2 Wet and Dry Bulb Temperature Sensor