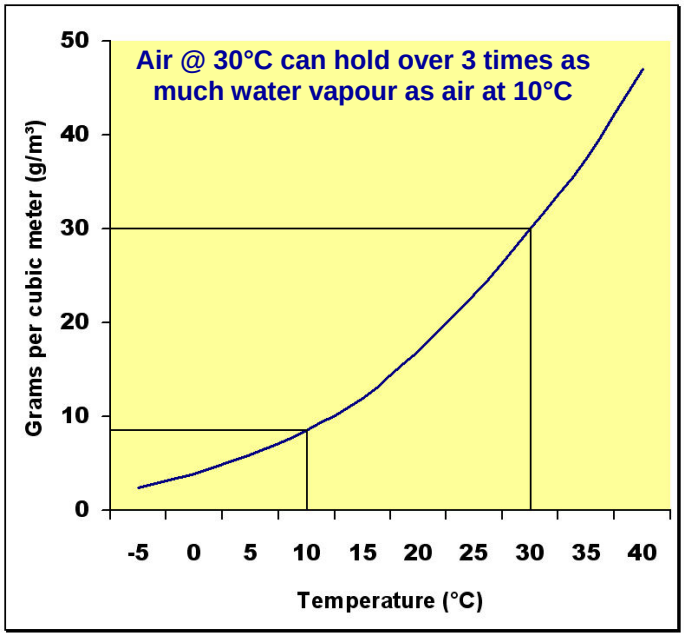
Measuring Humidity

Humidity is a very common measurement in many process plants. Timber kilns, Hospital operating theatres and Art galleries etc - all are places where correct humidity is crucial. Humidity is a measure of the water content that an atmosphere holds.



Electro-Chemical Sensors

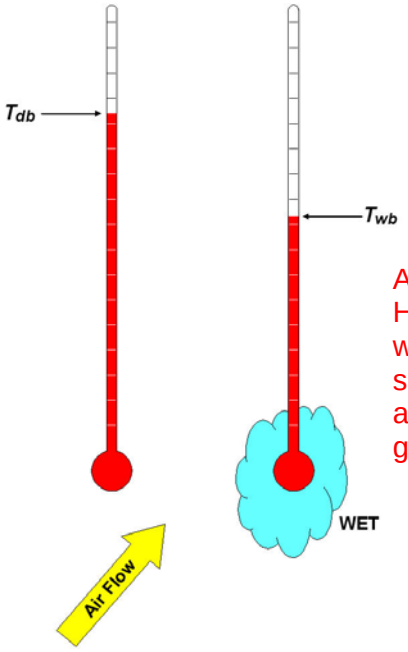
Typically such sensors consist of a surface of glass, ceramic or silicon on which a polymer or metal oxide sits between conductive electrodes.
The greater the humidity the greater the capacitance and this is entirely dependant on the water content or Humidity of the air.

LPN-H-W

LPN-H-D

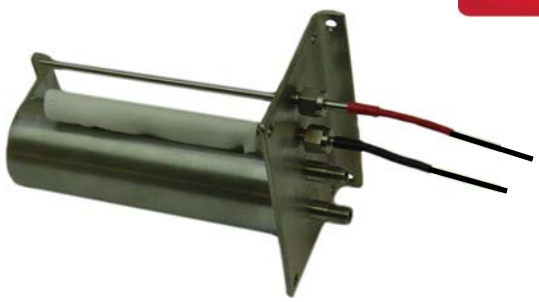
Wet & Dry Bulb Sensor

For water to change phase to water vapour, energy or 'heat' is required. A wet & dry bulb uses this principle to measure humidity. One bulb is wrapped with a water saturated wick. The other is left uncovered. As water from the wet bulb evaporates, energy is removed from surface of the wet bulb and the measured temperature reduces. The reduction in temp of the wet bulb depends on the rate of evaporation of water from the wick. This in turn is dependant on the ambient air temperature but more importantly - the humidity of the atmosphere.



At 100% RH (Relative Humidity) T db & T wb will be exactly the same. The lower the ambient humidity, the greater the differential.

WDT-DW



IN-HWD

See over for more product details >>

Humidity Transmitters

Electro-Chemical Sensors

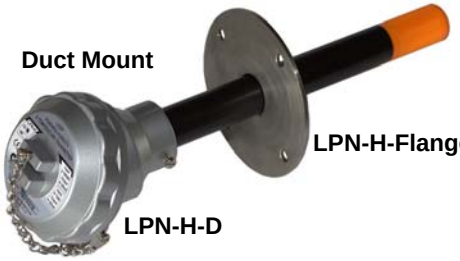
The **LPN-H** is a complete relative humidity and temperature sensing module, with two loop powered 4~20mA output signals, representing 0~100%RH and 0~100ºC.

www.intech.co.nz/lpn-h

Wall Mount

LPN-H-W

Duct Mount



LPN-H-Flange

LPN-H-D

Features:

- **NEW Sensirion SHT25 Digital** Humidity Sensor.
- Long term stability.
- Fast response: 4 seconds from 0 to 100%RH under ideal conditions.
- Dual 4~20mA Outputs.
- %RH Temperature Compensated Linear Output.
- Pt100 RTD Sensor.
- Temperature Output 0~100ºC (0~200ºF optional).
- Temperature Output Linearised.
- Very Compact Design.
- High Accuracy.
- Low Cost.
- Easy to Install.
- Reverse Polarity Protection.
- Wide Power Supply Range.
- Rugged and reliable.

Wet & Dry Bulb Sensor

The **WDT-DW** wet and dry bulb humidity tank would normally be wired to a IN-HWD (rev 2) Humidity and Temperature Indicator/Transmitter (or similar) with two 4~20mA outputs representing 0~100% RH plus 0~100ºC.

WDT-DW

www.intech.co.nz/wdt-dw

Features:

- Humidity tank with wet and dry sensors
- For the measurement of relative humidity, RH%
- Commonly used with the IN-HWD Humidity indicator/transmitter
- Constructed of 316 stainless steel

Humidity Indicator/Transmitter

The **IN-HWD** (rev 2) has the usual two Pt100 inputs for the wet and dry bulb, two 4~20mA outputs for RH and dry bulb temperature, with no software required. The units come factory calibrated and no initial calibration is required when installed as per the Installation Guide. Options are available for adding relay alarm outputs and/or serial port with Modbus RTU.

Features:

- Independent Humidity and temperature indicator/transmitter
- %RH Accurate to 1.0%.
- Temperature Accurate to 0.1%
- Low Cost
- Easy to Install
- Typically used with our WDT-DW wet and dry bulb humidity tank.

Note: The IN-HWD (rev 2) replaces both the 2100-A4-HWD and the older IN-HWD.

Optional: The IN-HWD will connect to our MicroScan SCADA software for logging of the humidity and temperature via the optional RS485 MODBUS RTU comms (requires the PLC Modbus driver for direct connection to MicroScan); alternatively connect via a Intech Micro I/O Remote Station using the two 4~20mA outputs (does not require the IN-HWD comms option).

IN-HWD

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