Hydronix

Digital Microwave Moisture Sensor
for Organic Materials

Hydro-Probe XT

THE ORIGINAL – THE LEADERS – THE BEST

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Digital microwave moisture sensor for organic materials

The Hydro-Probe XT is a rugged, microwave moisture measurement sensor designed for use in flowing materials such as grain, animal feed, nuts, pulses, oils and other organic and agricultural materials.

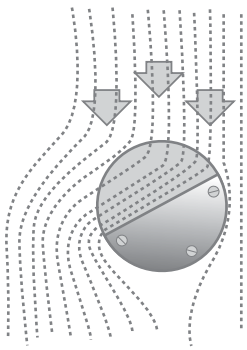
The sensor incorporates the unique Hydronix digital measurement technique. This facilitates a choice of measurement modes enabling the user to select the most appropriate mode based on the material being measured and the precision required. The sensor is pre-optimised for grain and animal feed but may easily be re-configured for other materials using Hydronix Hydro-Com software.

Features

- Digital technology provides precise linear moisture measurement.
- Choice of measurement modes for optimising sensor performance in a variety of applications and material types.
- Advanced Digital Signal Processing provides a clear signal with rapid response.
- Configurable digital inputs / output.
- Averaging, “Bin Empty” and “High / Low Moisture” Alarms.
- Fast response to changing conditions with 25 measurements per second.
- Consistent performance with no need for recalibration except for use with different materials.
- Stand alone or simple integration into a new or existing automation system.
- Identical sensor characteristics.
- Not affected by dust or colour.
- Design does not impede material flow.

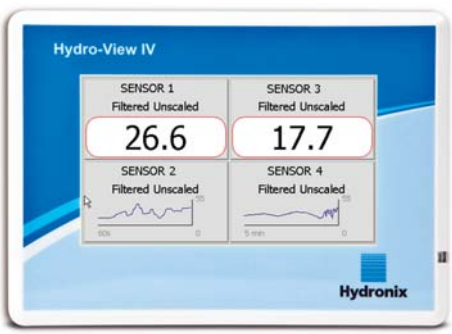
Angle of Sensor

Ensures continuous flow over the sensor

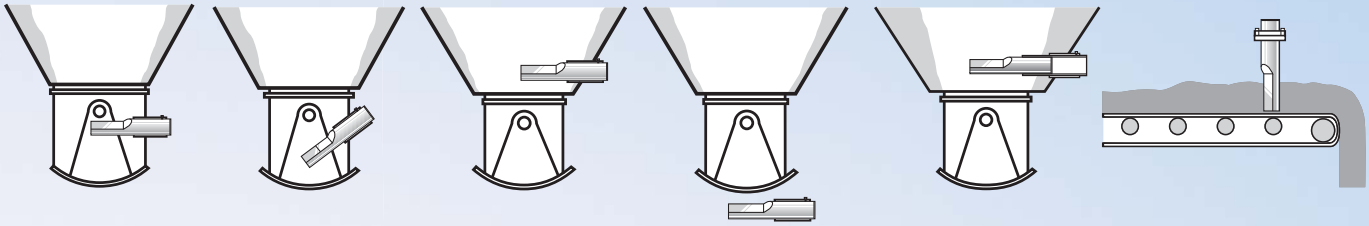


Display and Control Options

Hydronix has a range of display and control options

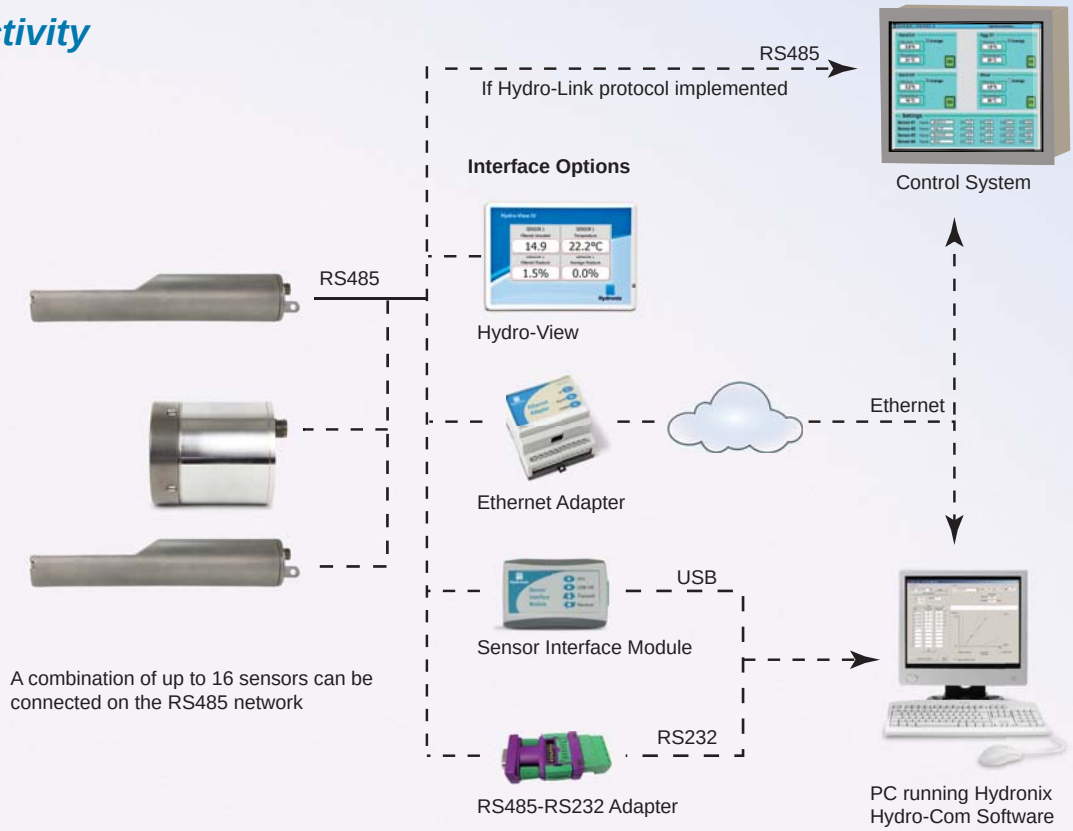


Typical Installation



The Hydro-Probe XT offers a choice of installation options to suit all bin types and conveyor applications. This ensures that the sensor measures the most representative sample of material.

Connectivity



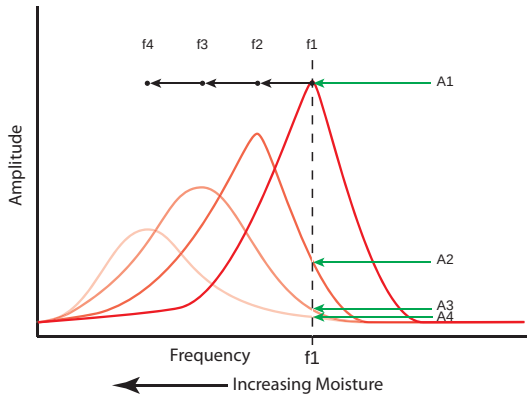
Digital Measurement Benefits

All microwave moisture measurement techniques measure the change in relative permittivity of a material as its moisture content changes. This is best achieved by measuring changes in the amplitude and frequency response of a microwave resonator exposed to the material.

The advantage of the digital measurement technique is that it can independently measure both the changes in amplitude and frequency whereas an analogue technique is only able to measure the change in amplitude at a fixed frequency. Hydronix digital sensors use specific algorithms to mathematically combine the two independent measurements.

The advantage of this is shown opposite by a consistent span between the changing frequencies f1 to f4 as the moisture increases as opposed to the diminishing response of the amplitude measurement (A1-A4). The overall effect is to produce an extremely linear response over a very wide moisture range.

Frequency / Amplitude



Technical Information

Construction

Body: Stainless Steel

Faceplate: Ceramic

Fixing

The sensor must be placed in the flow of material.

Bins and Silos: Install in the neck of a bin or underneath the gate. Standard and Extension Mounting Sleeves are available to suit different bin widths.

Conveyors: Secure in the flow of material.

Moisture Range

The sensor will measure up to saturation of material.

Penetration of Field

Approximately 75-100mm dependent upon material.

Refresh Rate

25 times per second.

Operating Temperature

0-60° C. The sensor will not measure ice.

Analogue Outputs

Two configurable 4-20mA or 0-20mA current loop source available for moisture and temperature. May also be converted to 0-10V DC.

Digital (Serial) Communication

Opto-Isolated RS485 2-wire port. RS232, Ethernet and USB interfaces available.

Programming details to access sensor values and parameters are available on request.

Discrete Inputs

The batch average, start, stop or moisture / temperature multiplexing functions can be controlled via the digital inputs.

Extension Cable

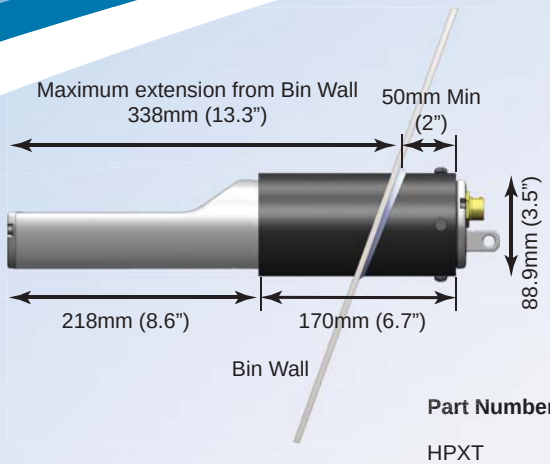
Up to six twisted pairs, 22AWG, 0.35mm^2 conductors. Screen braid with 65% minimum coverage plus aluminium/polyester foil. Maximum cable run of 100m.

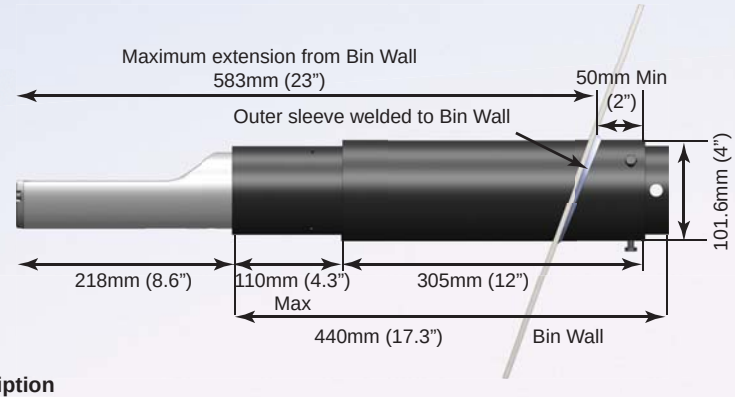
Power Supply

+15V to +30V DC, 4W

Configurable Alarms

The sensor can be set to signal “Bin Empty” or “Moisture Too High” levels.





Part Number	Description
HPXT	Hydro-Probe XT - Standard Mode for normal digital or analogue connection
0025	Standard Mounting Sleeve
0026	Extension Mounting Sleeve
0024X	Flanged Mounting Sleeve (for vertical mounting)
0023	Clamp Ring for use with Flanged Mounting Sleeve
0975	4m Sensor Cable with military specification sensor connector
0069	4m Compatibility Cable, 4 core with Bulgin Connector
0067	Terminal Box (IP66, 10 Terminals)
0116	24VDC Power Supply 30 watt for up to 4 Sensors
0049A	RS232-485 Adapter DIN rail mounting
0049B	RS232-RS485 Converter, 9 pin D-type to Terminal Block
SIM01-A	USB Sensor Interface Module including cables and power supply
EAK01	Ethernet Adapter Kit
EPK01	Ethernet Power Kit
PXEW	4 Year extended warranty option

Hydronix

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