

# Microwave Moisture Measurement



**Hydronix**



**Digital  
sensors for  
powders, bulk  
solids, grains  
& liquids**

## About Hydronix

Established in 1982, Hydronix specialises in the research, development, and manufacture of digital microwave moisture measurement systems. Our products are used to reduce manufacturing costs and to improve the quality of the finished product. Hydronix has developed a unique range of sensors tailored to achieving high precision measurement in a wide range of installation locations.

At Hydronix, we are proud of our four pillars, which combine to deliver key business benefits.



### Commitment to Excellence



### Innovation



### Worldwide Expert Network



### Technology

#### Asset utilisation

- Increase overall equipment effectiveness
- Reduce unplanned downtime

#### Sustainability

- Lower carbon footprint
- Save energy

#### Return On Investment

- Average return on investment, 3 months
- No need for expensive ongoing maintenance contracts

### Key benefits

#### Quality

- Less waste
- Consistent final products

ROI

Quality

Profitability

Productivity

#### Profitability

- Reduce waste
- Reduce energy
- Automate processes

#### Productivity

- Increase production yield through efficient use of material
- Online instant monitoring eliminating manual testing

**Maintain  
moisture  
targets,  
react  
instantly  
to changes,  
improve  
efficiencies.**

**Hydronix offers a range of digital microwave sensors for use in the processing of bulk solids or liquid materials.**

Our range offers a choice of installation and temperature options enabling a sensor to be positioned in many locations where moisture, Brix or the concentration of liquid solutions needs to be measured.



#### Hydro-Mix XT

- Flush mount for mixers, screw and chain conveyors
- Mounting options for ducting and belt conveyors



#### Hydro-Mix HT

- Process temperature range up to 120°C
- Flush mount for mixers & screw conveyors
- Mounting options for ducting



#### Hydro-Probe XT

- Mount in or underneath bins/silos or hoppers
- Mount above a belt conveyor



#### Hydro-Probe Orbiter

- Process temperature range up to 100°C
- Mount in or underneath bins/silos or hoppers
- Mount above a belt conveyor



#### Hydro-Probe SE (Brix)

- Process temperature range up to 120°C
- Suitable for mounting in pressurised vessels
- Brix or moisture calibration available



#### Hydro-Mix XT-FS (Food Safe)

- Flush mount for mixers & screw conveyors
- Food Safe compliant with EN 1935/2004



#### Hydro-Mix XT-EX

- Flush mount for mixers & screw conveyors
- Suitable for explosive dust environments



#### Hydro-Mix HT-EX

- Process temperature range up to 120°C
- Flush mount for mixers & screw conveyors
- Suitable for explosive dust environments

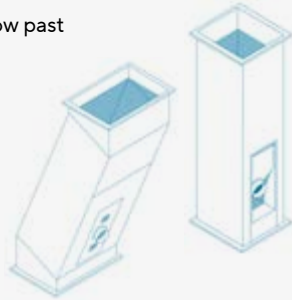


# Installation Options

Hydronix sensors can be mounted in many different locations throughout the process provided that there is a consistent flow of material across the ceramic faceplate. Some typical locations are indicated below.

## Ducting

- Designed to optimise flow past sensor faceplate
- Available in vertical or angled mountings
- Installed in flow rate above 1kg per second.



Hydro-Mix XT



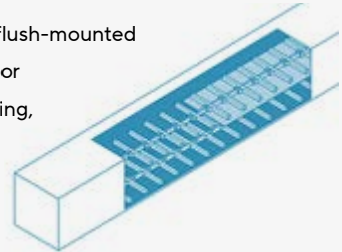
Hydro-Mix HT



TEMPERATURE MEASUREMENT  
AMBIENT: 60°C  
HIGH: UPTO 120°C

## Chain / En-masse conveyor

- Hydro-Mix sensors flush-mounted in bottom of conveyor
- Internal sensor filtering, removes blade noise from measurement.



Hydro-Mix XT, XT-EX, XT-FS



Hydro-Mix HT, HT-EX

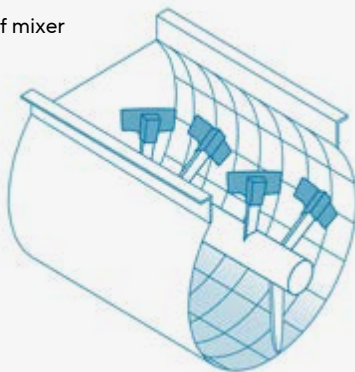


TEMPERATURE MEASUREMENT  
AMBIENT: 60°C  
HIGH: UPTO 120°C



## Mixer

- Hydro-Mix sensors mounted in belly or end wall of mixer
- Internal sensor filtering, removes blade noise from measurement.



Hydro-Mix XT, XT-EX, XT-FS



Hydro-Mix HT, HT-EX



Hydro-Probe Orbiter

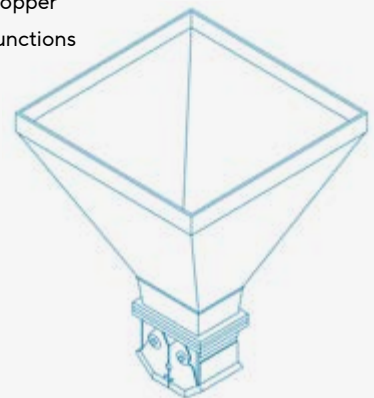


TEMPERATURE MEASUREMENT  
AMBIENT: 60°C  
HIGH: UPTO 120°C



## Bin / Silo Large hopper

- Hydro-Probe XT / Hydro-Probe Orbiter mounted in or under outlet of hopper
- Internal sensor functions for batch averaging.



Hydro-Probe XT



Hydro-Probe Orbiter



TEMPERATURE MEASUREMENT  
AMBIENT: 60°C  
HIGH: UPTO 100°C



## Belt conveyer

- Hydro-Probe XT or Hydro-Probe Orbiter mounted vertically above 150mm material thickness
- Hydro-Mix XT mounted on a skid with 60mm material thickness.



Hydro-Mix XT, XT-FS

Hydro-Mix HT, HT-EX



Hydro-Probe XT



Hydro-Probe Orbiter

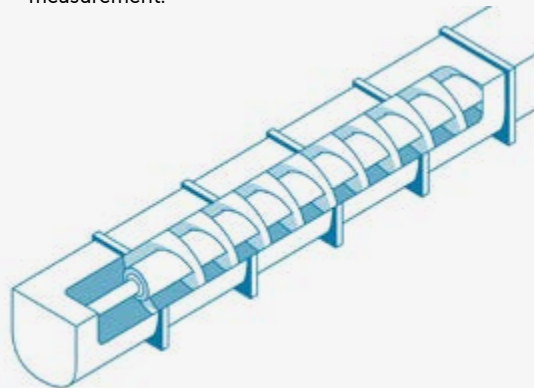


TEMPERATURE MEASUREMENT  
 AMBIENT: 60°C  
 HIGH: UPTO 120°C



## Screw conveyer

- Hydro-Mix sensors installed in the trough of screw conveyer
- Internal sensor filtering, removes blade noise from measurement.



Hydro-Mix XT, XT-EX, XT-FS

Hydro-Mix HT, HT-EX



TEMPERATURE MEASUREMENT  
 AMBIENT: 60°C  
 HIGH: UPTO 120°C



## Pipe / Calandria Pressure vessel

- Hydro-Probe SE installed into the bottom of vessel/pan
- Suitable for pressures from vacuum to 6 Bar gauge.



Hydro-Probe SE



TEMPERATURE MEASUREMENT  
 AMBIENT: 60°C  
 HIGH: UPTO 120°C

## Your installation

- Talk to us and see how we can help you.
- [enquiries@hydronix.com](mailto:enquiries@hydronix.com)



# Process benefits

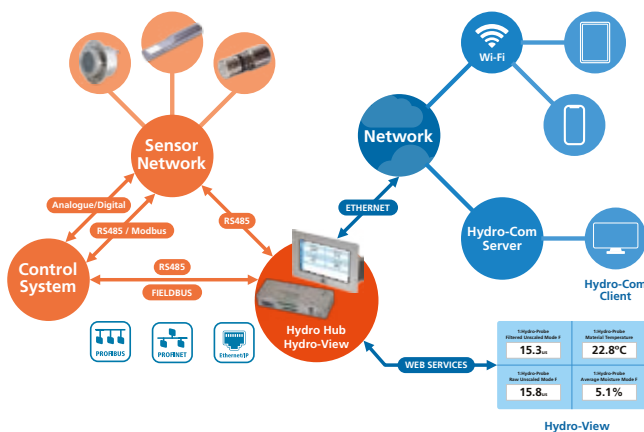
Examples of processes that can be measured and the associated benefits which can be achieved.

| Process                         | Benefits                                                                                                                                                                                                                                                       | Input | In process | Output |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------|--------|
| <b>Conditioning</b>             | Reduce output variability<br>Regulate the material elasticity and ductility                                                                                                                                                                                    | ●     | ●          |        |
| <b>Drying</b>                   | Prevent mycotoxins, spoilage, grain shrinkage and heat spots<br>Improve yield<br>Reduce output variability<br>Cut energy consumption and emissions                                                                                                             | ●     |            | ●      |
| <b>Material dosing/weighing</b> | Adjust quantities of micro-ingredients based on moisture<br>Calculate the dry weights for proportioning                                                                                                                                                        | ●     | ●          | ●      |
| <b>Milling/grinding</b>         | Optimise the energy consumption<br>Improve the machine lifetime and reduce wear<br>Reduce output variability                                                                                                                                                   | ●     |            | ●      |
| <b>Mixing</b>                   | Obtain correct homogeneity<br>Reach target moisture<br>Cut energy consumption and emissions                                                                                                                                                                    | ●     | ●          | ●      |
| <b>Packaging</b>                | Check final quality control<br>Reduce spoilage<br>Increase shelf-life                                                                                                                                                                                          | ●     |            |        |
| <b>Pelletising/extrusion</b>    | Reach optimum moisture target<br>Reduce output variability<br>Produce consistent and repeatable product                                                                                                                                                        | ●     |            | ●      |
| <b>Storage</b>                  | Preserve the crops and grains for longer<br>Prevent spoilage, mould growth, hot spots, breakages, and parasites<br>Pay correctly for material delivery<br>Reject material delivered at incorrect moisture level<br>Adjust chemical dosing for moisture content | ●     |            | ●      |
| <b>Water/chemical addition</b>  | Reduce output variability<br>Regulate the material elasticity and ductility<br>Adjust quantities of micro-ingredients based on moisture                                                                                                                        | ●     | ●          | ●      |

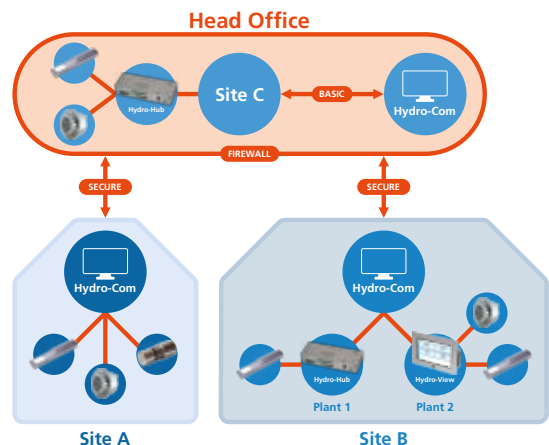
## Connectivity

Combine Hydronix hardware & software solutions to control and monitor multiple sensor networks across site locations worldwide.

### Connect your Plant



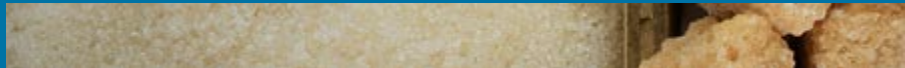
### Connect your Locations



## Some materials we measure:



*Sugar*



*Rice*



*Nuts & Seeds*



*Oils & Liquids*



*Coffee*



*Animal feed*



*Grain*





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