



Digital, Microwave Moisture Sensor for  
Rotating Pan Mixers, Static Pan Mixers  
and Conveyors

# Hydro-Probe Orbiter



THE ORIGINAL – THE LEADERS – THE BEST

# Hydro-Probe Orbiter

## *Digital microwave moisture sensor for rotating or static pan mixers*

*The Hydro-Probe Orbiter is a rugged, digital moisture sensor that measures directly in the mix. Reading at 25 times per second, the arm moves through the material providing a fast and accurate response to changes in moisture.*

*The sensor comprises of 2 parts - the Head Unit which houses the electronics and a hard wearing Sensing Arm, which can be easily changed, eliminating the need to replace the entire sensor. Remote configuration, calibration, diagnostics and firmware upgrades are simple using Hydronix Hydro-Com software and the linear output allows direct integration with any control system using industry standard interfaces.*



### **Features**

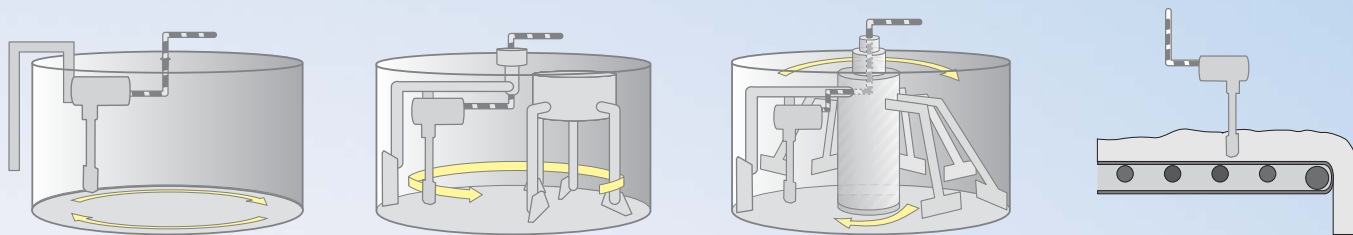
- Digital technology provides precise linear moisture measurement.
- Sensor electronics contained in Head Unit, separate from Sensing Arm.
- Choice of mounting options for different mixer types.
- Choice of arm lengths.
- Fast stable sensor readings not affected by mixer blades.
- Rapid response temperature measurement.
- Two analogue outputs, digital RS485 communications and configurable digital input/outputs.
- Fast response with 25 measurements per second.
- Hydro-Com software allows configuration of all sensor parameters.
- Tough and reliable with proven track record.

### **Rotating Connector**

Rotating unit for mounting the Hydro-Probe Orbiter in static pan mixers. Choice of models available for different mixer types.



## Typical Installation



In a rotating pan mixer or conveyor application, the Hydro-Probe Orbiter can be cabled directly to the control system. In a static pan mixer the sensor cable is routed through the Hydronix Rotating Connector.

## Connectivity

### Direct Connection to PC

The RS485 serial interface provides a direct connection to an operator interface or a PC.



### Direct Connection to Control System

The analogue or serial interface integrates easily with a moisture control system.

### Hydro-Control Connection

Provides a complete system to control moisture in a mixing application.



## Networking

Network up to 16 sensors using one standard Ethernet connection with the Ethernet Adapter Kit. Power over Ethernet option also available.



## USB Interface

Easy communication with sensor using USB sensor interface module for sensor diagnostics, configuration and firmware upgrades.



# Technical Information

## Construction

Body: Stainless Steel (AISI 304).  
Sensing Head: Hardened Ceramic.

## Fixing

The sensor is designed to be clamped to a vertical 25mm square mild steel bar which is supplied by the customer.

## Operating Temperature

**Head Unit:** 0-60° C.

**Sensing Arm:** 0-45°C. (High temperature arm also available)

The sensor will not measure ice.

## Penetration of Field

Approximately 75-100mm dependent upon material.

## Refresh Rate

25 times per second.

## Moisture Range

The sensor will measure up to saturation of material.

## Digital (Serial) Communication

Opto-Isolated RS485 2-wire port.

RS485 to RS232, Ethernet and USB converters available.

## Inputs and Outputs

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

**Digital Inputs/Outputs:** Two configurable digital signals available for averaging and alarm functions.

## Grounding

The sensor body is connected to the cable shield. Ensure equipotential bonding of all exposed metalwork. In areas of high lightning risk, correct and adequate protection should be used.

## Extension Cable

Six twisted pairs, 22AWG, 0.35mm<sup>2</sup> conductors. Screen braid with 65% minimum coverage plus aluminium/polyester foil. Maximum cable run of 100m.

## Power Supply

+15V to +30V DC, 4W.



| Part Number | Description  |
|-------------|--|
| ORB1        | Hydro-Probe Orbiter Head Unit  |
| ORBA2       | Sensing Arm - (0-45°C) various lengths   |
| ORBA1-HT    | High Temperature Sensing Arm - (0-100°C) various lengths   |
| ORBR2       | Rotating Connectors - Contact Hydronix for details   |
| 0580        | Sensing Arm Guard  |
| 0582        | Rear Protection Plate  |
| 0584        | Ceramic Protection Ring, Pack of 2   |
| 0586        | Steel Protection Ring, Pack of 5   |
| 0090A       | 4m Sensor Cable with military specification sensor connector. Also available in 10m and 25m lengths. |
| 0116        | Power Supply 30 Watt for up to 4 sensors   |
| 0049A       | RS232-485 Converter - DIN rail mounting  |
| 0049B       | RS232-485 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 - provides Power over Ethernet  |
| ORB1EW      | 4 Year extended warranty option  |



**Hydronix**