Innovative solutions
Ultra-Dynamics Pty Ltd
for industry

hydroSCAN®

Microwave Moisture Monitor

Moisture measurement has always been an important process parameter, conventionally carried out using conventional laboratory analysis of a manual sample.

Now the hydroSCAN® On-Conveyor Moisture Measurement System allows the accurate measurement of moisture

hydroSCAN® is suitable for all nonconducting materials such as:

- Aggregates
- Mineral Ores
- Coal
- Bagasse
- Wool
- Bauxite
- Grains
- Silica
- Wood Chip
- Bulk Foods
- Sand
- Chemicals
- Sugar
- Cotton

The Electrical Cabinet houses the touch screen PLC, meter signal electronics, power supply and terminations. This can be installed up to 1000m from the meter. The system is supplied with a single-phase 110 – 240 VAC power supply or site supplied 12V – 24V DC. Remote access is available via 4G. This allows assisted calibration and maintenance to be done anywhere in the world.

Potential Limitation	hydroSCAN®	Near Infra-Red
Vertical segregation	Unaffected – beam penetrates full bed of material	Reflectance technique from surface molecules only
Sample presentation	Unaffected by the position of material	Distance of material surface to receiver important
Colour	Unaffected	Significant effect
Ambient lighting	Unaffected	Requires shielding
Wear	No moving parts	Mechanical filter system
Presence of steam	Unaffected	Can cause interference
Dirty atmosphere	IP65 enclosures	Window requires to be kept clean

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hydroSCAN® On-Conveyor Moisture Monitor – subsystems

Electronics Control Cabinet – usually mounted on the Measurement Support Frame. This cabinet contains electrical, electronic, and microwave hardware which consists of:

- Microwave Components
- Touch Screen display and control Terminal
- 4G Remote Access Module
- Processor / PDC
- Power Supplies
- Electrical Terminations

Mass Flow Measurement

HydroSCAN can interface with a belt scale or weigh feeder to calculate weight percent moisture. When an application has no measurement device hydroSCAN® can be supplied complete with an integrated belt- scale.

Technical Specifications

Operational	
Conveyor width (Distance between stringers)	Up to 1,750mm as standard (*1,800 mm and wider may require extension arms)*
Conveyor speed	No limit
Material top size	Typically, up to 300mm (material dependent)
Bed depth range	Typically, 20mm to 300mm (material dependent)
Moisture range	0 to 80%
Measurement update time	Typically, 1 minute user configurable
Instrument precision	Typically, 0.5% at 1 standard deviation
Electrical Requirements	
At the Electronics Control Cabinet	110 - 240 V AC, single phase, 3.2 amp or 12V – 24V DC Site Supply
Environmental Requirements	
Operating temperature range	0 to 45°C with protection from direct sun and rain
Humidity	0 to 95% relative (non-condensing)
Outputs	
Instantaneous moisture	0 to 10 volts or 4 to 20 mA current loop
Tonnage weighted moisture	0 to 10 volts or 4 to 20 mA current loop — requires a belt-scale signal
Serial	Modbus, Ethernet, Profibus etc
High moisture	Relay closure
Low moisture	Relay closure
Shipping mass	120 kg
Shipping dimensions	1200mm x 600mm x 600mm — dependant on conveyor size

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