

# ScanMin H2OScan Analyser

The H2OSCAN On-Belt Moisture Measurement System now allows the accurate measurement of moisture in real-time. This ready availability of moisture information allows proactive process control actions. The information can be used in several ways including:

- Metallurgical/process accounting
- Diverting excessively moist material away from vulnerable downstream processes
- Feedback control to a dryer circuit
- Feed forward/back control to spray bars for dust control
- Product nett weight monitoring for quality control purposes
- Product moisture/dry mass contract compliance, etc., etc.

## Applications

Suitable for continuous, on-conveyor applications ranging from conventional non-conducting materials to moderately attenuating materials such as iron ore, chrome, minerals concentrates and high moisture coals.

## System description

The H2OScan on-belt moisture analyser consists of the following sub-systems:

- **Measurement H-bracket:**
  - Sturdy H bracket securely mount H2OScan over the conveyor by bolting to conveyor structure
- **Easily adjusted to fit existing conveyors**
- **Ensures** accurate alignment of the microwave transmitter and receiver subsystems.
- **Electronics control cabinet:**

Mounted on H bracket or separate fixture. Contains electrical, electronic hardware which consists of:

- Processor / PLC
- Power supplies
- Electrical terminations
- **Analogue or digital inputs and outputs**
  - Profibus standard – Modbus/Ethernet etc. available
- **Mass flow measurement:**
  - Usually provided using a belt scale or weigh feeder. H2OScan can interface with this device for the calculation of weight percent moisture. For applications with no measurement device H2OScan can be supplied complete with an integrated belt scale.

## Competitive advantages of H2Oscan compared to Near infrared

	H2Oscan	Near infrared
Vertical segregation	Unaffected - beam penetrates full bed of material	Reflectance technique from surface molecules only
Sample presentation	Unaffected by position of material	Distance of material surface to receiver important for Infrared
Colour	Doesn't affect H2Oscan	Affected by belt material colour changes
Ambient lighting	Unaffected	Requires shielding from ambient light
Wear	No moving parts	Mechanical filter system
Presence of steam	Unaffected	Can cause interference
Dirty atmosphere	IP65 enclosures	Infrared lamp window requires cleaning

## Operational requirements

Conveyor width	Up to 1,400mm as standard (over 1,400 mm requires a customized on-belt frame)
Conveyor speed	No limit
Material top size	Typically, up to 300mm (material dependent)
Bed depth range	Typically, 0mm to 300mm (material dependent)
Moisture range	0 to 80%
Measurement update time	Typically, 1 minute (user configurable)
Instrument precision	Typically, 0.3% at 1 standard deviation (ultimate precision achievable 0.1 %)
Useability	The H2Oscan can perform 3 measurements per second (user configurable)
Safety	Very low microwave power emitted (<1 microwatt/cm <sup>2</sup> at the antenna)

## Environmental requirements

Operating temperature range	0 to 50°C with protection from direct sun and rain
Humidity	0 to 95% relative (non-condensing)

## Electrical requirements

At the Electronics Control cabinet 240VAC or 110 VAC, single phase, 6 Amp supply.

## Inputs

Weightometer/ Belt Scale	Standard: 4-20 mA current loop or Digital inputs: Modbus/Profibus/Ethernet etc)
Conveyor Status on/off & Speed	Standard: 4-20 mA current loop or Digital inputs: Modbus/Profibus/Ethernet etc)
Bulk Density	Optional: Bulk density meter advised where belt loading is not constant

## Outputs

Instantaneous moisture	0-10V or 4-20 mA current loop
Tonnage weighted moisture	0-10V or 4-20 mA current loop
Moisture Relay closures	High and Low moisture relay closures

## Shipping

Shipping mass	30 kg
Shipping dimensions	800mm long x 600mm wide x 1,000mm high

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