



Procon Engineering Ltd

(Incorporating: Defiant - Negretti - Inflo - Lintvalve)



ultraMOIST™ On-Line Microwave Moisture Monitor

Background

Moisture measurement has always been an important process parameter. Traditionally this has been carried out using the conventional laboratory analysis of a manual sample. The ultraMOIST On-Belt Moisture Measurement System now allows the accurate measurement of moisture in realtime

Competitive Advantages compared to other technologies:

Potential Limitation	ultraMOIST	Near Infra Red
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
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

Suitable for all non-conducting materials such as:

- | | | | |
|-------------|--------------|--------|----------------------|
| coal | bagasse | grains | silica |
| wood flakes | chemicals | sugar | wool |
| bauxite | mineral ores | food | and other non- |
| sand | aggregates | cotton | conducting materials |

Also available is a Silo/Hopper version of the microwave moisture monitor, details of which can be found on a separate datasheet.



technical specification sheet

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System Description

The ultraMOIST On-Belt Moisture Analyser consists of the following sub systems:

Measurement C-Bracket which provides the means of mounting ultraMOIST on the conveyor as well as accurate alignment of the microwave transmitter and receiver subsystems.

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

- Processor / PLC.
- Power supplies.
- Electrical terminations.
- Microwave Components
- Display Panel and terminal.

Mass Flow Measurement – usually provided using a belt scale or weigh feeder. ultraMOIST is able to interface with this device for the calculation of weight percent moisture. For applications with no measurement device ultraMOIST can be supplied complete with an integrated beltscales.

SPECIFICATION

Operational	
Conveyor width	Up to 1400mm as standard (over 1400mm requires a customised on-belt frame)
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 0.3% at 1 standard deviation (ultimate precision achievable 0.1%)
Electrical Requirements	
At the Electronics Control Cabinet	240 volt or 110 volt, single phase, 2 amp 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 20mA current loop
Tonnage weighted moisture	0 to 10 volts or 4 to 20mA current loop
High moisture	Relay closure
Low moisture	Relay closure
Shipping mass	30 kg
Shipping dimensions	800mm long x 600mm wide x 1000mm high

Procon Engineering's policy is one of continuous product enhancement. We therefore reserve the right to incorporate technical modifications without prior notification.

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