Marrari
AUTOMAÇÃO

DATASHEET
INLINE SYSTEM · BULK MOISTURE
EN

UmiChip

Inline moisture meter for biomass and wood chips

Measures the moisture of bulk materials in real time and feeds it to process control, 5 times per second.



3–70%	5/s	<3 p.p.	100
measuring range (wet basis)	readings per second	accuracy	programmable recipes

01 WHY USE IT

Run the process on the real moisture of the material.

Boiler and digester
Chip and biomass moisture at the boiler feed and the pulp digester inlet.

Moisture-based pricing
A basis to pay for biomass according to the moisture it arrives with.

Continuous tuning
With Tracker, recipes update with lab results and the average error drops.

02 HOW IT WORKS

The system uses the **dielectric method**. The sensor emits a field about **10 cm deep**, so it needs a steady layer of material above it, or a sample collector.

1. **Moisture sensor** — 304 stainless · up to 100 mm reach
   - M12 connector
   - up to 4 sensors
2. **Central unit** — PLC and HMI · 100 recipes
   - RS232/ RS485
   - proprietary TCP
3. **Data software** — SV710 Umi-View · Power Server
   - Modbus RTU
   - Profibus DP
4. **Customer system** — PLC, SCADA or reports

Continuous reading as material flows over the sensor, or batch reading with a sample collector (scoop, fork or blade).

INSTALLATION

Well-installed sensor, reliable reading

The sensor field reaches about 10 cm. To measure well:

- A steady 10 cm layer over the sensor, or a collector
- Sampling close to the sensor, for the lab
- Access to the sensor for inspection, e.g. an acrylic window
- A recipe with at least 15 duplicate samples in Tracker

03 COMPONENTS AND SPECIFICATIONS



Central unit

Dimensions	500 × 400 × 250 mm · IP54 · 17 kg
Power supply	95 to 240 Vac, 50/60 Hz · 500 W max.
Communication	1 RS232 · 1 RS485
Protocols	Proprietary RS232/RS485 and TCP · Modbus RTU · Profibus DP gateway · others on request

Moisture sensor

Material	304 stainless steel
Dimensions	190 × 190 × 91 mm · 2.1 kg
Process connection	170 × 170 mm square flange
Connector	M12, 5-pin, IP67, Pg9 thread

04 INPUTS, OUTPUTS AND SERVICES

Digital inputs
8 DI
On/off per sensor, alarm reset and sampling button for up to 4 sensors.

Digital outputs
6 DO
Audible alarm, collector discharge cylinders and stability and sampling beacons.

Analog
4 AO · 2 AI (4–20 mA)
Direct, sampled, filtered or trend moisture outputs; temperature inputs.

Tracker
Recipe adjustment
Statistical software that tunes recipes with lab results and lowers the average error.

Yearly maintenance
Performed by Marrari
Software update and check against Marrari standards, once a year. Recommended: zero at every shutdown, monthly cleaning and check nothing blocks the sensor.

Umilab and after-sales
Start-up and training
Tuning before start-up: umilab@marrari.com.br. Visits and training: posvendas@marrari.com.br.

General specifications

Method	Dielectric, inline
Range	3 to 70% (w.b.) · 3 to 150% (d.b.)
Resolution	0.1 p.p.
Accuracy	Better than 3 p.p. of reading
Reading rate	5 per second · last-hour buffer
Temperature	Up to 85 °C, automatic compensation
Recipes	100 programmable
Options	Scoop, fork or blade collectors
Applications	Pulp, boilers, pellets and MDP, bagasse, grains, feed
Documents	MR700 manual · Tracker · Annex 05.b