

— INDUSTRIAL PROCESS SENSING

QN-100

NIR Moisture Sensor

Continuous, non-contact near-infrared moisture measurement — accurate, real-time process data directly on the production line.

±0.05%

Typical accuracy

IP65

Sensor enclosure

3×

4–20 mA outputs

5+

Fieldbus protocols

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Built for the line. Trusted in the process.

The QN-100 delivers continuous moisture measurement without interrupting production — giving operators and control systems the data they need to dry, mix, and condition with confidence.

KEY FEATURES

01

Non-Contact Measurement

NIR light measures moisture without touching the product — no wear, no contamination, no process interruption.

02

Integrated HMI Touchscreen

Built-in 7" colour touchscreen shows live readings, 60-minute trend chart, and full calibration — on the sensor itself.

03

Real-Time Continuous Output

Three isolated 4–20 mA outputs feed your control system directly for closed-loop drying and mixing control.

04

Industrial Fieldbus Ready

Profinet, Profibus DP, EtherNet/IP, Modbus TCP and EtherCAT — integrates with virtually any PLC or DCS.

05

Multi-Component Measurement

Measure moisture plus up to two further components — oil, coat weight, or basis weight — from the same optics.

HOW IT WORKS

The QN-100 uses the characteristic absorption of near-infrared light by water molecules to deliver accurate, instantaneous moisture readings — with no sample preparation and no contact with the product.

1

NIR Light Emitted

A tungsten halogen lamp projects near-infrared light towards the product through a rotating filter wheel.

2

Light Reflected & Absorbed

Water molecules absorb the measurement wavelength strongly, while reference channels remain unaffected.

3

Ratio Calculated

Measurement-to-reference ratios eliminate the effect of product colour, texture, and distance variation.

4

Calibration Applied

A two-point laboratory calibration maps the optical ratio to moisture percentage on the HMI and outputs.



IN-LINE ON THE PROCESS

PROCESS VALUE

Measure once. Control continuously.

Move from delayed lab samples to live moisture data your operators and control system can act on immediately.

Less over-drying

Hold moisture on target and cut energy waste from running dryers too hard.

Tighter consistency

Reduce batch-to-batch variation versus relying on spot checks alone.

Closed-loop control

Feed analogue or fieldbus outputs straight into your PLC or DCS.

Faster decisions

See moisture as it happens — no waiting for oven results from the lab.

TECHNICAL SPECIFICATIONS

PERFORMANCE	
Measurement Range	0–30% Low Moisture, 30–90% High Moisture
Accuracy	±0.05% moisture (typical)
Repeatability	±0.02% moisture (1σ, stable conditions)
Resolution	Up to 3 decimal places
Response Time	Configurable damping filter (1–10 s typical)
Stored Calibrations	Up to 256 product calibrations

OPTICAL / NIR	
Light Source	Tungsten halogen lamp (>20,000 hrs typical)
Detector	PbS photodetector
Filter Channels	3
Standoff Distance	250–400 mm from window face

ELECTRICAL	
Supply Voltage	230 VAC or 24 VDC
Power Consumption	<30 W (sensor + HMI)
Analogue Outputs	3 × 4–20 mA (isolated, 16-bit)
Digital Outputs	3 × NPN/PNP, 24 V DC
Digital Inputs	4 × 24 V DC

ENVIRONMENTAL & COMMUNICATIONS	
Operating Temperature	0 to +60 °C
Enclosure (Sensor)	IP65 (NEMA 4)
Enclosure (HMI)	IP54 (NEMA 12)
HMI Display	7" colour TFT touchscreen
Fieldbus Options	Profinet, Profibus DP, EtherNet/IP, Modbus TCP, EtherCAT
Certifications	CE marked, RoHS compliant

APPLICATIONS

Wherever continuous moisture measurement of bulk solids or powders is critical to quality and efficiency.

Food & Beverage

Cereals, snacks, baked goods and ingredient lines.

Animal Feed

Pelleting, drying and cooling in compound feed.

Chemical & Pharma

Granules, powders and active ingredient drying.

Building Materials

Sand, aggregates, minerals and cement raws.

Plastics & Recycling

Granule moisture before extrusion or moulding.

Biomass & Energy

Wood chips, pellets and biomass fuel control.

Milling & Flour

Wheat tempering and grain conditioning.

Paper & Converting

Web moisture and coat-weight monitoring.

Tobacco

Leaf processing, conditioning and drying.

General Industry

Any bulk solid drying or conditioning line.

Real-World Installations

The QN-100 delivers reliable measurement across diverse industrial processes — from conveyors and hoppers to converting lines.



Film & Converting

Non-contact measurement on web and film lines with high precision and no process interruption.



Hopper Monitoring

Moisture measurement through a viewing window for continuous quality control on bulk solids.



Conveyor Integration

Direct in-line moisture measurement of powders and granules on drying conveyors.

MECHANICAL

Compact. Mountable. Ready for the line.

The QN-100 sensor head is designed for industrial mounting above belts, hoppers, and process windows — with a practical standoff distance and IP65 protection.

- Standoff distance 250–400 mm from window face
- IP65 sensor enclosure for harsh environments
- Flexible mounting for conveyors, hoppers and webs

INSTALLATION

Typical mounting points

Over conveyor

Aim the sensor at a stable product bed on belts and screw conveyors.

Hopper window

Measure through a viewing window into bins, chutes, or hoppers.

Web / film line

Mount above the web for coat-weight or moisture on converting lines.

Before the dryer

Use live readings to trim drying energy and hold moisture on target.

250–400

mm standoff

IP65

sensor enclosure

7"

HMI touchscreen



READY FOR YOUR LINE

NEXT STEP

See what the QN-100 can do for your process.

Speak to our applications team — we'll help you evaluate the QN-100 for your material, review mounting options, and arrange a demonstration.

Request a Demo

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1. Tell us the process

Material, moisture range,
and mounting point.

2. Application review

We confirm suitability
and recommend setup.

3. Book a demo

On your site or at our
facility.